Magic Mathmatics (Book-4)

Chapter 1 Number and Their Place Value

Exercise-1.1

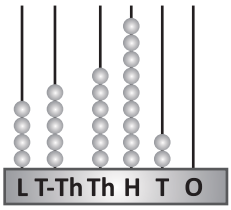
1. Write numbers shown on the abacus .

a) 742102 b) 7154 c) 51451

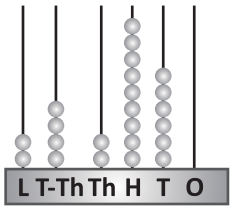
d) 42318 e) 235142 f) 3748

2. Draw beads on the abacus to show these numbers.

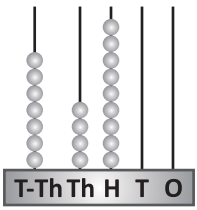
a) 4 5 6 9 2 0



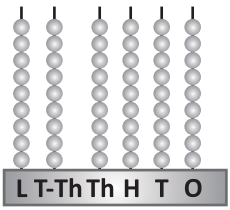
b) 2 4 2 9 6 0



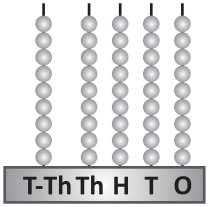
c) 7 4 9 0 0



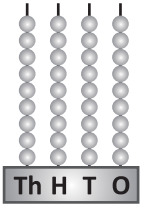
d) 9 9 9 9 9 9



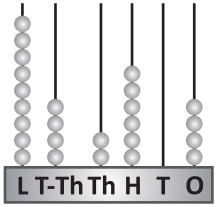
e) 9 9 9 9 9



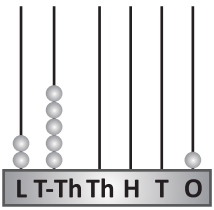
f) 9 9 9 9



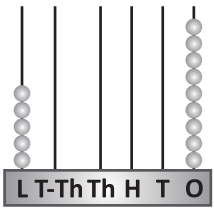
g) 9 4 2 6 0 4



h) 2 5 0 0 0 1



i) 5 0 0 0 0 9



3. Write the following numbers in words :

a) Sixty five thousand four hundred twenty seven.

b) Two lakh thirty two thousand one hundred forty.

c) Nine lakh seventy two thousand nine hundred forty two.

d) Seven lakh eighty one thousand nine hundred seventy nine.

4. Write the standard numeral for each of the following :

a) 54,337 b) 85428

c) 90,727 d) 9,70,023

5. Write the place value of the encircled digit in each of the following :

a) 7 ,490 → $7 \times 1000 = 700$

b) 7 4 ,782 → $4 \times 1000 = 4000$

c) 7, 1 26 → $1 \times 100 = 100$

d) 5, 6 12 → $6 \times 100 = 600$

e) 3 ,21,507 → $3 \times 100,000 = 3,00,000$

f) 18, 7 63 → $7 \times 100 = 700$

g) 3 4 ,951 → $4 \times 1000 = 4,000$

h) 3 4,367 → $3 \times 10,000 = 3000$

6. Match the following :

a) Sixty-four thousand three hundred seventy-six

b) Five lakh seventeen thousand eight

c) One lakh eighty-two thousand four hundred sixty-nine

d) Nine lakh eighteen thousand six hundred

e) Four lakh seven hundred thirty-three

i) 4,00,733

ii) 5,17,008

iii) 1,82,469

iv) 64,376

v) 9,18,600

7. **Complete the series by counting in tens :**

a) 5350, 5360, 5370, 5380

b) 64780, 64790, 64800, 64810

8. **Write the expanded form for each of the following :**

a) 92,427 = 90,000 + 2000 + 400 + 20 + 7

b) 62,543 = 60000 + 2000 + 500 + 40 + 3

c) 8,39,405 = 800000 + 30000 + 9000 + 400 + 5

d) 6,43,702 = 600000 + 40000 + 3000 + 700 + 2

9. **Write these numbers in figures. While writing numbers don't forget to put commas at proper places :**

a) 68,009 b) 25,897 c) 60,597

d) 8,08,032 e) 7,00,894

Exercise 1.2

1. **Circle the greatest number in each of the following :**

a) 5,564; 5,775; 7,505

b) 63,791; 36,971; 63,971

c) 42,133; 24,133; 24,331

d) 92, 781; 29,872; 98,632

2. **Circle the smallest number in each of the following :**

a) 66,414; 4,414; 66,814

b) 8,810; 7,88, 032; 8,88,320

c) 55,055; 55,550; 5,505

d) 4,973; 7,972; 7,977

3. **Arrange the following numbers in descending order :**

a) 8,89,032 > 2,00,100 > 1,00,000 > 4,816;

b) 7,20,913 > 5,10, 483 > 98,439 > 36,931

c) 6,936 > 5,694 > 4,638 > 3,494;

4. **Arrange the following numbers in ascending order :**

a) 89,463 < 98,346 < 94,846 < 2,48,396

b) 58,391 < 68,139 < 86,318 < 98,631

c) 4,966 < 22,961 < 24,961 < 30,196

Exercise -1.3

1. Do the following :

a) 86210 b) 13459 c) 862210

d) 203489 e) 8764

2. Use the following without repeating digits to make the greatest number and the smallest number possible.

Digits	Greatest Number	Smallest Number
a) 1,0,2,7	7210	1027
b) 3,1,9,0	9310	1039
c) 3,7,2,8,4	87432	23478
d) 2,4,7,6,9	97642	24679
e) 4,7,6,5,2,9	976542	245679

3. a) 844 b) 7552 c) 6610

Exercise -1.4

1. Round these numbers to nearest 10 :

a) 920 b) 100 c) 20

d) 350 e) 640 f) 40

2. Round these numbers to nearest 100 :

a) 57,700 b) 9,300 c) 9,200

d) 4,700 e) 100 f) 200

3. Round these numbers to nearest 1000 :

a) 9,000 b) 8,63,000 c) 8,000

d) 79,000 e) 9,000 f) 1,000

4. Monthly school fee = ₹ 956

Rounding off 956 to nearest 100 = 1,000

So Meenu should take ₹ 1000.

5. Selling price of mobile = ₹ 4592

Rounding off 4592 to nearest 1000 = 5000

So the cost of mobile is ₹ 5000

6. Total students = Total number of arranges = 88
rounding off 88 to the nearest 10 = 90
So, the class teacher should order 90 oranges.

Exercise - 1.5

1. Arrange the following Roman Numerals in ascending order :

a) I < XX < XXV < XXIV
b) XI < XIII < XXIV < XXV <XXVI
c) II < IX < XVI < XXII < XXIII
d) IX < X < XII < XIII < L

2. Write the value for each of these numbers in Roman numerals :

a)	XVII	b)	XXXVI	c)	XLVIII
d)	XLV	e)	LXV	f)	IX
g)	L	h)	LXXII	i)	XIV
j)	XXIV	k)	XXXV	l)	XXV

3. Write the value for each of these Roman numerals in numbers :

a)	14	b)	47	c)	30
d)	49	e)	8	f)	10
g)	40	h)	29	i)	38

4. Arrange the following Roman Numerals in descending order :

a) L > IX > VIII > VI > III
b) XXX > XVII > XV > X > IV
c) C > XXVI > XXI > XIV > IV

5. Write the number before and after :

a) XIX – XX – XXI
b) XXXVIII – XXXIX – XL
c) XVIII – XIX – XX
d) XXXIX – XL – XLI

6. Fill in the blanks with '>', '<' or '=' sign in the following :

a) > b) > c) > d) <

7. Complete the table :

1	I	1
2	II	1+1
3	III	1+1+1
4	IV	5 – 1
5	V	5
6	VI	5 + 1
7	VII	5+1+1
8	VIII	5+1+1+1
9	IX	10–1
10	X	10
11	XI	10+1
12	XII	10+1+1
13	XIII	10+1+1+1
14	XIV	15–1
15	XV	15
16	XVI	15+1
17	XVII	15+1+1
18	XVIII	15+1+1+1
19	XIX	20–1
20	XX	20
21	XXI	20+1
22	XXII	20+1+1
23	XXIII	20+1+1+1
24	XXIV	25–1
25	XXV	25
26	XXVI	25+1
27	XXVII	25+1+1

28	XXVIII	25+1+1+1
29	XXIX	30–1
30	XXX	30
31	XXXI	30+1
32	XXXII	30+1+1
33	XXXIII	30+1+1+1
34	XXXIV	35–1
35	XXXV	35
36	XXXVI	35+1
37	XXXVII	35+1+1
38	XXXVIII	35+1+1+1
39	XXXIX	40–1
40	XL	40

Chapter 2 : Addition

Exercise - 2.1

1. Add :

(a)

	Th	H	T	O
	5	8	2	0
+	3	0	6	9
	8	8	8	9

(b)

	Th	H	T	O
	2	9	3	6
+	2	0	5	2
	4	9	8	8

(c)

	Th	H	T	O
	6	4	3	2
+	3	5	4	7
	9	9	7	9

(d)

	T-Th	Th	H	T	O
	4	2	9	0	4
+	3	4	0	9	1
	7	6	9	9	5

(e)

	T-Th	Th	H	T	O
	6	2	3	5	1
+	3	0	4	2	3
	9	2	7	7	4

(f)

	T-Th	Th	H	T	O
	8	2	3	2	2
+	1	5	4	3	3
	9	7	7	5	5

(g)

	T-Th	Th	H	T	O
	6	5	9	0	0
+	2	4	0	0	1
	8	9	9	0	1

(h)

	T-Th	Th	H	T	O
	7	6	5	2	9
+	2	3	0	4	0
	9	9	5	6	9

(i)

	T-Th	Th	H	T	O
	5	4	3	8	8
+	4	3	5	1	1
	9	7	8	9	9

2. Find the sum :

(a)
```
  5396
+ 2602
  7998
```

(b)
```
  6548
+ 2431
  8979
```

(c)
```
  3564
+ 5435
  8999
```

(d)
```
  42320
+ 47050
  89370
```

(e)
```
  82315
+ 14563
  96878
```

(f)
```
  65814
+ 34185
  99999
```

(g)
```
  88543
+ 10435
  98978
```

(h)
```
  59482
+ 40517
  99999
```

(i)
```
  78220
+ 20739
  98959
```

3. Write in columns and add :

(a) Arrange the numbers in columns as shown below :

	T-Th	Th	H	T	O
	3	2	3	0	4
+	1	1	6	8	3
	4	3	9	8	7

Hence, 32304 + 11683 = 43987

(b) Arrange the numbers in columns as shown below :

	T-Th	Th	H	T	O
	3	2	4	6	5
+	6	5	1	2	4
	9	7	5	8	9

Hence, 32465 + 65124 = 97589

(c) Arrange the umbers in columns as shown below :

	T-Th	Th	H	T	O
	7	8	9	4	3
+	2	1	0	5	6
	9	9	9	9	9

Hence, 78945 + 21056 = 99999

(d) Arrange the umbers in columns as shown below :

	T-Th	Th	H	T	O
	2	0	5	2	4
+	4	6	3	5	3
	6	6	8	7	7

Hence, 20524 + 46353 = 66877

4. Find the sum :

(a) Arrange the numbers in columns as shown below :

	Th	H	T	O
	3	4	6	4
+	5	4	3	2
	8	8	9	6

Hence, 3464 + 5432 = 8896

(b) Arrange the numbers in columns as shown below :

	T-Th	Th	H	T	O
	2	4	2	5	4
+	1	5	6	0	5
	3	9	8	5	9

Hence, 24254 + 15605 = 39859

(c) Arrange the numbers in columns as shown below :

	T-Th	Th	H	T	O
	4	5	1	4	7
+	3	4	4	5	0
	7	9	5	9	7

Hence, 45147 + 34450 = 79597

(d) Arrange the numbers in columns as shown below :

	T-Th	Th	H	T	O
	3	0	3	1	4
+	3	1	6	7	2
	6	1	9	8	6

Hence, 30314 + 31672 = 61986

(e) Arrange the numbers in columns as shown below :

	T-Th	Th	H	T	O
	6	4	3	1	5
+	2	3	1	2	0
	1	2	0	2	3
	9	9	4	5	8

Hence, 64315 + 23120 + 12023 = 99458

(f) Arrange the numbers in columns as shown below :

	T-Th	Th	H	T	O
	1	1	3	0	2
+	3	4	1	6	3
	1	2	0	1	1
	5	7	4	7	6

Hence, 11302 + 34163 + 12011 = 57476

5. Find the missing digits :

(a)

	T-Th	Th	H	T	O
	3	2	6	**6**	3
+	**2**	6	**0**	3	**4**
	5	8	6	9	7

Explanation :

At the ones place : 7 – 3 = 4
Write 4 in the missing ones place.
At the tens place : 9 – 3 = 6
Write 6 in the missing place.
At the hundreds place : 6 – 6 = 0
Write 0 in the missing place.
At the Ten-thousands place : 5 – 3 = 2
Write 2 in the missing place.

(b)

T-Th	Th	H	T	O
3	◯	6	6	2
+ ◯	◯	◯	3	◯
3	2	3		4
8	9	9	9	8

Explanation :

At the ones place : $8-(2+4)=8-6=2$
Write 2 in the missing ones place.
At the tens place : $9-(6+3)=9-9=0$
Write 0 in the missing tens place.
At the hundreds place : $9-(6+3)=9-9=0$
Write 0 in the missing hundreds place.
At the thousands place : $9-(2+0)=9-2=7$
Write 7 in the missing thousands place.
At the ten-thousands place : $8-(3+3)=8-6=2$
Write 2 in the missing ten-thousands place.

(c)

T-Th	Th	H	T	O
5	3	5	7	3
+ ◯	2	◯	◯	◯
◯	◯	1	0	2
5	6	7	9	7

Explanation :

At the ones place : $7-(3+2)=7-5=2$
Write 2 in the missing ones place.
At the tens place : $9-(7+0)=9-7=2$
Write 2 in the missing tens place.
At the hundreds place : $7-(5+1)=7-6=1$
Write 1 in the missing hundreds place.
At the thousands place : $6-(3+2)=6-5=1$
Write 1 in the missing thousands place.
At the ten-thousands place : $5-5=0$
Write 0 in the missing ten-thousands place.

Exercise - 2.2

1. Add :

(a)

Th	H	T	O
1	1	1	
9	6	5	8
+ 4	5	9	6
1 4	2	5	4

(b)

Th	H	T	O
1	1	1	
6	5	4	7
+ 3	8	9	5
1 0	4	4	2

(c)

Th	H	T	O
1	1	1	
3	8	5	3
+ 2	7	8	8
6	6	4	1

(d)

T-Th	Th	H	T	O
1	1	1	1	
4	8	9	7	4
+ 2	6	8	5	9
7	5	8	3	3

(e)

T-Th	Th	H	T	O
1		1	1	
7	7	5	9	3
+ 1	8	3	6	7
9	5	9	6	0

(f)

T-Th	Th	H	T	O
1	1	1	1	
1	1	6	4	9
+ 2	8	5	8	3
4	0	2	3	2

(g)

	T-Th	Th	H	T	O
	1	1	1	1	
	4	5	6	7	6
+	3	7	8	9	4
	8	3	5	7	0

(h)

	T-Th	Th	H	T	O
	1	2	2	1	
	6	8	9	5	4
+	2	4	6	9	3
+		5	7	6	7
	9	9	4	1	4

(i)

	T-Th	Th	H	T	O
	1	2	2	2	
	2	3	9	5	6
+	5	4	6	8	7
+		3	7	6	8
	8	2	4	1	1

2. Find the sum :

(a) Arranging the given numbers in column form and adding, We get :

	Th	H	T	O
	1	1	1	
	6	8	9	5
+	2	6	7	8
	9	5	7	3

Hence, 6895 + 2678 = 9573

(b) Arranging the given numbers in column form and adding, We get :

	Th	H	T	O
	1	1	1	
	4	9	6	7
+	2	5	5	7
	7	5	2	4

Hence, 4967 + 2557 = 7524

(c) Arranging the given numbers in column form and adding, We get :

	T-Th	Th	H	T	O
	1	1	1	1	
	5	5	4	7	5
+	1	3	9	4	6
	6	9	4	2	1

Hence, 55475 + 13946 = 69421

(d) Arranging the given numbers in column form and adding, We get :

	T-Th	Th	H	T	O
	1	1			
	1	9	4	2	7
+	3	6	9	3	1
	5	6	3	5	8

Hence, 19427 + 36931 = 56358

(e) Arranging the given numbers in column form and adding, We get :

	T-Th	Th	H	T	O
	1			1	
	6	7	1	5	8
+	1	9	4	2	3
	8	6	5	8	1

Hence, 67158 + 19423 = 86581

(f) Arranging the given numbers in column form and adding, We get :

	T-Th	Th	H	T	O
		1	1	1	
	7	8	4	3	9
+		2	4	6	2
+		5	3	9	5
	8	6	2	9	6

Hence, 78439 + 2462 + 5395 = 86296

3. Arrange in columns and add :

(a) Arranging the given numbers in column form and adding, We get :

	Th	H	T	O
	1	1	1	
	3	5	5	9
+	2	7	9	5
	6	3	5	4

Hence, 3559 + 2795 = 6354

(b) Arranging the given numbers in column form and adding, We get :

	T-Th	Th	H	T	O
	1		1	1	
	1	5	3	4	9
+	2	6	4	9	5
	4	1	8	4	4

Hence, 15349 + 26495 = 41844

(c) Arranging the given numbers in column form and adding, We get :

	T-Th	Th	H	T	O
	1	1			
	1	7	8	2	3
+	3	4	6	7	5
	5	2	4	9	8

Hence, 17823 + 34675 = 52498

(d) Arranging the given numbers in column form and adding, We get :

	T-Th	Th	H	T	O
	1	1	1	1	
	3	9	4	9	5
+	2	6	9	9	9
	6	6	4	9	4

Hence, 39495 + 26999 = 66494

(e) Arranging the given numbers in column form and adding, We get :

	T-Th	Th	H	T	O
	1	1	1	1	
	4	5	5	6	7
+	3	4	9	6	4
	8	0	5	3	1

Hence, 45567 + 34964 = 80531

(f) Arranging the given numbers in column form and adding, We get :

	T-Th	Th	H	T	O
	1	2	1	1	
	4	4	9	5	6
+	3	2	6	4	2
+	1	2	9	5	7
	9	0	5	5	5

Hence, 44956 + 32642 + 12957 = 90555

4. Fill in the boxes :

(a)

	1	3	7	6
+	4	9	8	**4**
+	2	**1**	5	7
+	6	7	**2**	3
1	5	2	4	0

Hence, the missing numbers are 4, 2, 1 and 1.

(b)

		9	7	5	6
+			7	1	**7**
+		8	**6**	0	5
+	3	**6**	3	**2**	4
	5	5	**4**	0	2

Hence, missing numbers are 7, 2, 6, 4, 6.

Exercise - 2.3

1. Aman earned in first year = ₹35876
   Aman earned in second year = ₹31275
   Aman earned in third year = +₹32699
   Total earned = ₹99850
   Hence, Aman earned ₹ 99850 in three years.
2. Books published in July = 42567
   Book published in August = 25789
   Books published in September = + 22578
   Total published = 90934
   Hence, books published in three months are 90934.
3. Population of first town = 27524
   Population of second town = 25456
   Population of third town = + 46236
   Total population = 99216
   Hence, the total population of three towns are 99216.
4. The cost of a Splender bike = ₹34455
   The cost of a Pulser bike = ₹45562
   Total = ₹80017

Hence, the total cost of two bikes is 80017.

5. First candidates obtained = 25798 Votes
Second candidates obtained = 12345 Votes
Third candidates obtained = + 27589 Votes
Total = 65732 Votes

Hence, three candidates obtained 65732 votes.

6. First school callected = ₹27526
Second school collected = ₹53467
Third school collected = + ₹24432
Total = ₹105425

Hence, total collection of three schools are ₹ 105425.

7. Length of the one rope = 7522 metres
Length of the second rope = 55424 metres
Length of the third rope = +22315 metres
Total = 85261 metres

Hence, the total length of three ropes are 85261 metres.

8. Number of men in fair = 44655
Number of women in fair = 43532
Number of children in fair = + 10205
Total = 98392

Hence, 98392 people were present in fair.

Chapter 3 : Subtraction

Exercise - 3.1

1. Subtract :

(a)

Th	H	T	O
9	5	4	3
– 6	4	2	1
3	1	2	2

(b)

Th	H	T	O
7	8	6	8
– 2	4	5	3
5	4	1	5

(c)

Th	H	T	O
8	9	2	9
– 6	5	0	6
2	4	2	3

(d)

Th	H	T	O
5	8	2	5
– 3	1	0	4
5	5	1	1

(e)

Th	H	T	O
6	8	5	3
– 1	3	4	2
5	5	1	1

(f)

T-Th	Th	H	T	O
8	8	0	4	5
– 5	4	0	2	2
3	4	0	2	3

(g)

T-Th	Th	H	T	O
7	9	5	6	4
– 4	6	3	5	3
3	3	2	1	1

(h)

T-Th	Th	H	T	O
9	8	6	8	3
– 5	7	5	0	0
4	1	1	8	3

(i)

T-Th	Th	H	T	O
8	9	5	2	9
– 0	4	4	0	3

(j)

T-Th	Th	H	T	O
5	9	9	5	8
– 4	5	6	0	0
1	4	3	5	8

(k)

T-Th	Th	H	T	O
5	7	9	8	9
– 1	5	5	4	6
4	2	4	4	3

(l)

T-Th	Th	H	T	O
8	7	6	4	5
– 2	1	5	0	3
6	6	1	4	2

(m)

T-Th	Th	H	T	O
8	5	9	5	5
– 4	0	4	0	0
4	5	5	5	5

2. Arrange in columns and subtract :

(a) Arranging the given numbers in columns and subtracting, we get;

Th	H	T	O
9	6	6	7
– 8	2	4	4
1	4	2	3

Hence, 9667 – 8244 = 1423

(b) Arranging the given numbers in columns and subtracting, we get;

Th	H	T	O
7	5	4	6
– 6	5	3	2
1	0	1	4

Hence, 7546 – 6532 = 1014

(c) Arranging the given numbers in columns and subtracting, we get;

	Th	H	T	O
	8	7	6	5
–	7	6	3	2
	1	1	3	3

Hence, 8765 – 7632 = 1133

(d) Arranging the given numbers in columns and subtracting, we get;

	T-Th	Th	H	T	O
	5	6	8	6	5
–	4	5	6	3	2
	1	1	2	3	3

Hence, 56865 – 45632 = 11233

(e) Arranging the given numbers in columns and subtracting, we get;

	T-Th	Th	H	T	O
	8	7	5	3	4
–	6	5	4	3	2
	2	2	1	0	2

Hence, 87534 – 65432 = 22102

(f) Arranging the given numbers in columns and subtracting, we get;

	T-Th	Th	H	T	O
	7	9	6	7	4
–		7	5	4	3
	7	2	1	3	1

Hence, 79674 – 7543 = 72131

(g) Arranging the given numbers in columns and subtracting, we get;

T-Th	Th	H	T	O
8	6	9	6	7
–		7	4	5
8	6	2	2	2

Hence, 86967 – 745 = 86222

(h) Arranging the given numbers in columns and subtracting, we get;

T-Th	Th	H	T	O
5	7	8	5	2
– 2	5	3	0	1
3	2	5	5	1

Hence, 57852 – 25301 = 32551

(i) Arranging the given numbers in columns and subtracting, we get;

T-Th	Th	H	T	O
4	6	9	7	9
– 2	3	7	6	8
2	3	2	1	1

Hence, 46979 – 23768 = 23211

3. (a) Subtrahend = 7657 and minuend = 9889

∴ The required difference = 9889 – 7657

= 2232

Th	H	T	O
9	8	8	9
– 7	6	5	7
2	2	3	2

(b) Subtrahend = 64585 and minuend = 85697

The required difference = 85697 – 64585

= 21112

T-Th	Th	H	T	O
8	5	6	9	7
– 6	4	5	8	5
2	1	1	1	2

4. Subtract :

(a)

	Th	H	T	O
	7	5	3	5
–	4	4	3	0
	3	1	0	5

Hence, 7535 – 4430 = 3105

(b)

	Th	H	T	O
	9	7	9	4
–	8	4	3	1
	1	3	6	3

Hence, 9794 – 8431 = 1363

(c)

	Th	H	T	O
	8	2	7	8
–	7	0	4	6
	1	2	3	2

Hence, 8278 – 7046 = 1232

(d)

	T-Th	Th	H	T	O
	6	8	7	6	5
–	3	5	4	2	1
	3	3	3	4	4

Hence, 68765 – 35421 = 33344

(e)

	T-Th	Th	H	T	O
	4	6	3	2	8
–		3	1	0	6
	4	3	2	2	2

Hence, 46328 – 3106 = 43222

(f)

	T-Th	Th	H	T	O
	3	4	7	5	4
–			6	5	3
	3	4	1	0	1

Hence, 34754 – 653 = 34101

(g)

	T-Th	Th	H	T	O
	5	2	2	1	3
–	4	1	0	0	2
	1	1	2	1	1

Hence, 522213 – 41002 = 11211

(h)

	T-Th	Th	H	T	O
	7	9	8	7	5
–	3	6	4	6	4
	4	3	4	1	1

Hence, 79875 – 36464 = 43411

(i)

	T-Th	Th	H	T	O
	6	8	2	8	3
–	4	4	0	7	1
	2	4	2	1	2

Hence, 68283 – 44071 = 24212

5. Fill in the boxes :

(a)

	T-Th	Th	H	T	O
	7	6	5	4	2
–	**6**	**2**	**2**	3	2
	1	4	3	**1**	**0**

Hence, the missing numbers are 0, 1, 2, 2, and 6.

Explanation :

At the ones place : 2 – 2 = 0
Write 0 in the missing ones place.
At the tens place : 4 – 3 = 1
Write 1 in the missing tens place.
At the hundreds place : 5 – 3 = 2
Write 2 in the missing hundreds place.
At the thousands place : 6 – 4 = 2
Write 2 in the missing thousands place.
At the ten-thousands place : 7 – 1 = 6
Write 6 in the missing ten-thousands place.

(b)

	T-Th	Th	H	T	O
	6	4	8	5	9
–	**3**	0	**5**	3	**5**
	3	**4**	3	**2**	4

Hence, the Required missing numbers are 5, 2, 5, 4and 3.

Explanation :

At the ones place : 9 – 4 = 5
Write 5 in the missing ones place.
At the tens place : 5 – 3 = 2
Write 2 in the missing tens place.
At the hundreds place : 8 – 3 = 5
Write 5 in the missing hundreds place.
At the thousands place : 4 – 0 = 4
Write 4 in the missing thousands place.
At the ten-thousands place : 6 – 3 = 3
Write 3 in the missing ten-thousands place.

Exercise - 3.2

1. Subtract :

(a)

	Th	H	T	O
	7	5	3	1
–	4	9	7	6
	2	5	5	5

(b)

	Th	H	T	O
	8	1	2	5
–	5	3	4	7
	2	7	7	8

(c)

	Th	H	T	O
	5	9	0	2
–	3	7	4	5
	2	1	5	7

(d)

	T-Th	Th	H	T	O
	3	9	4	2	3
–	1	2	6	4	3
	2	6	7	8	0

(e)

	T-Th	Th	H	T	O
	5	0	3	2	2
–	3	4	7	8	5
	1	5	5	3	7

(f)

	T-Th	Th	H	T	O
	8	8	5	1	0
–	7	9	8	6	5
		8	6	4	5

(g)

T-Th	Th	H	T	O
7	1	8	9	5
– 3	3	4	7	8
3	8	4	1	7

(h)

T-Th	Th	H	T	O
8	1	3	9	4
– 7	5	9	2	0
	5	4	7	4

(i)

T-Th	Th	H	T	O
6	3	5	0	7
– 4	2	9	4	8
2	0	5	5	9

(j)

T-Th	Th	H	T	O
6	2	0	4	6
– 1	8	3	2	8
4	3	7	1	8

(k)

T-Th	Th	H	T	O
7	4	5	8	7
– 3	2	8	9	8
4	1	6	8	9

(l)

T-Th	Th	H	T	O
8	5	4	0	6
– 4	6	9	2	7
3	8	4	7	9

(m)

T-Th	Th	H	T	O
9	6	7	3	0
– 3	0	8	4	2
6	5	8	8	8

(n)

T-Th	Th	H	T	O
6	5	4	0	6
– 4	6	8	1	7
1	8	5	8	9

(o)

T-Th	Th	H	T	O
9	5	4	7	0
– 7	6	5	9	6
1	8	8	7	4

2. Arrange in columns and subtract :

(a) Arranging the given numbers in columns and subtracting, we get;

8	7	6	0
– 6	5	5	3
2	2	0	7

Hence, 8760 – 6553 = 2207

(b) Arranging the given numbers in columns and subtracting, we get;

6	8	7	3
– 3	9	4	5
2	9	2	8

Hence, 6873 – 3945 = 2928

(c) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 9\ 0\ 3\ 2 \\ -\ 8\ 6\ 9\ 5 \\ \hline 3\ 2\ 7 \end{array}$$

Hence, 9032 – 8695 = 327

(d) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 5\ 0\ 4\ 0\ 5 \\ -\ 4\ 6\ 8\ 3\ 2 \\ \hline 3\ 5\ 7\ 3 \end{array}$$

Hence, 50405 – 46832 = 3573

(e) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 8\ 0\ 0\ 2\ 1 \\ -\ 7\ 1\ 6\ 3\ 6 \\ \hline 8\ 3\ 8\ 5 \end{array}$$

Hence, 80021 – 71636 = 8385

(f) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 7\ 9\ 0\ 4\ 0\ 3 \\ -\ 6\ 9\ 3\ 1\ 5 \\ \hline 7\ 2\ 1\ 0\ 8\ 8 \end{array}$$

Hence, 79403– 69315 = 721088

(g) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 8\ 1\ 4\ 0\ 1 \\ -\ 1\ 5\ 3\ 1\ 3 \\ \hline 6\ 6\ 0\ 8\ 8 \end{array}$$

Hence, 81401 – 15313 = 66088

(h) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 9\ 1\ 3\ 4\ 0 \\ -\ 7\ 2\ 4\ 2\ 9 \\ \hline 1\ 8\ 9\ 1\ 1 \end{array}$$

Hence, 91340 – 72429 = 18911

(i) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 7\ 0\ 0\ 8\ 4 \\ -\ 5\ 8\ 8\ 6\ 9 \\ \hline 1\ 1\ 2\ 1\ 5 \end{array}$$

Hence, 70084 – 58869 = 11215

3. Find the difference :

(a) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 5\ 5\ 0\ 6 \\ -\ 3\ 9\ 8\ 7 \\ \hline 1\ 5\ 1\ 9 \end{array}$$

Hence, 5506 – 3987 = 1519

(b) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 6\ 8\ 2\ 5 \\ -\ 5\ 9\ 6\ 7 \\ \hline 8\ 5\ 8 \end{array}$$

Hence, 6825 – 5967 = 858

(c) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 8\ 3\ 0\ 4 \\ -\ 6\ 5\ 7\ 8 \\ \hline 1\ 7\ 2\ 6 \end{array}$$

Hence, 8304 – 6578 = 1726

(d) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 6\ 5\ 4\ 3\ 0 \\ -\ 3\ 7\ 8\ 6\ 5 \\ \hline 2\ 7\ 5\ 6\ 5 \end{array}$$

Hence, 65430 – 37865 = 27565

(e) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 8\ 7\ 3\ 2\ 6 \\ -\ 6\ 8\ 4\ 6\ 7 \\ \hline 1\ 8\ 8\ 5\ 9 \end{array}$$

Hence, 87326 – 68497 = 18859

(f) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 9\ 3\ 4\ 5\ 7 \\ -\ 8\ 4\ 6\ 7\ 6 \\ \hline 8\ 7\ 8\ 1 \end{array}$$

Hence, 93457 – 84676 = 8781

(g) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 4\ 5\ 3\ 0\ 2 \\ -\ 3\ 7\ 6\ 4\ 6 \\ \hline 7\ 6\ 5\ 6 \end{array}$$

Hence, 45302 – 37646 = 7656

(h) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 8\ 6\ 3\ 0\ 5 \\ -\ 7\ 8\ 4\ 3\ 9 \\ \hline 7\ 8\ 6\ 6 \end{array}$$

Hence, 86305 – 78439 = 7866

(i) Arranging the given numbers in columns and subtracting, we get;

$$\begin{array}{r} 9\ 8\ 6\ 7\ 5 \\ -\ 2\ 4\ 5\ 3\ 2 \\ \hline 7\ 4\ 1\ 4\ 3 \end{array}$$

Hence, 98675 – 24532 = 74143

4. (a) If we subtract 49465 from 85876, we find the required number.

$\therefore 85876 - 49465 = 36411$

	8	5	8	7	6
–	4	9	4	6	5
	3	6	4	1	1

Hence, the required number is 36411.

(b) If we subtract 67636 from 75748, we find the required number.

$\therefore 75748 - 67636 = 8112$

	7	5	7	4	8
–	6	7	6	3	6
		8	1	1	2

Hence, the required number is 8112.

5. (a) To find the required number we subtract 13415 from 54251.

$\therefore 54251 - 13415 = 40836$

	5	4	2	5	1
–	1	3	4	1	5
	4	0	8	3	6

Hence, the required number is 40836.

(b) To find the required number we subtract 2552 from 75423.

$\therefore 75423 - 2552 = 72871$

7	5	4	2	3
–	2	5	5	2
7	2	8	7	1

Hence, the required number is 72871.

6. Fill in the boxes :

(a)

T-Th	Th	H	T	O
7	2	3	4	3
– **2**	**8**	**6**	**8**	2
4	3	6	6	1

Hence, the missing numbers are 8, 6, 8 and 2.

Explanation :

At the ones place : $14 - 6 = 8$
Write 8 in the missing tens place.
At the tens place : $12 - 6 = 6$
Write 6 in the missing hundreds place.
At the thousands place : $11 - 3 = 8$
Write 8 in the missing thousands place.
At the ten-thousands place : $6 - 4 = 2$
Write 2 in the missing ten-thousands place.

(b)

T-Th	Th	H	T	O
9	8	4	1	6
– **7**	4	**7**	3	7
2	**3**	6	**7**	**9**

Hence, the missing numbers are 9, 7, 7, 3 and 7.

Explanation :

At the ones place : 16 – 7 = 9
Write 9 in the missing ones place.
At the tens place : 10 – 3 = 7
Write 7 in the missing tens place.
At the hundreds place : 13 – 6 = 7
Write 7 in the missing hundreds place.
At the thousands place : 7 – 4 = 3
Write 3 in the missing thousands place.
At the ten-thousands place : 9 – 2 = 7
Write 7 in the missing ten-thousands place.

(c)

T-Th	Th	H	T	O
9	4	8	0	**5**
– 6	**8**	**5**	3	1
2	6	2	**7**	4

Hence, the missing numbers are 5, 7, 5, 8 and 9.

Explanation :

At the ones place : 1 + 4 = 5
Write 5 in the missing one place.
At the tens place : 10 – 3 = 7
Write 7 in the missing tens place.
At the hundreds place : 7 – 2 = 5
Write 5 in the missing hundreds place.
At the thousands place : 14 – 6 = 8
Write 8 in the missing thousands place.
At the ten-thousands place : 6+2+1 = 9
Write 9 in the missing ten-thousands place.

Exercise - 3.3

1. To get the result, we subtract ₹ 7865 from ₹ 35550.

   The cost of computer = ₹35550
   The cost of T.V. = – ₹ 7865
   ∴ The much amount of computer = ₹27685
   Hence, computer is ₹ 27685 costly than T.V.

2. To get the result, we subtract 51990 from 65850.

   Books printed in Ist year = 65850
   Books printed in IInd year = – 51990
   ∴ More books printed in Ist year = 13860

Hence, 13860 books were printed in Ist year.

3. Total population in town = 47832

Number of males in town = – 26845

∴ Number of femals in town = 20987

Hence, 20987 females are in town.

4. Total number of students appeared examination = 72503

Number of students passed = – 21855

∴ Number of students failed = 50648

Hence, 50648 students failed in examination.

5. Total money Raju had = ₹65220

Raju bought bike = – ₹35435

∴ Raju left money = ₹29785

Hence, Raju left ₹ 29785.

6. Mrs. Zia sold the car = ₹91000

Mrs. Zia bought the car = – ₹85525

∴ Mrs. Zia gain in transaction = ₹ 5475

Hence, Mrs. Zia gain ₹ 5475.

7. To get the result, we subtract 8675 from 21460.

∴

$$\begin{array}{r} 21460 \\ -\ 8675 \\ \hline 12785 \end{array}$$

Hence, we should be added 12785.

8. Arti deposited in her account = ₹46180

Arti purchased a scooter = – ₹26835

∴ Left money in Arti account = ₹19345

Hence, ₹ 19345 left in Arti bank account.

Chapter 4 : Multiplication

Exercise - 4.1

1. Use the properties of multiplication and fill in the blanks :

(a) $9 \times 19 = \mathbf{19} \times 9$

(b) $21 \times 75 = 75 \times \mathbf{21}$

(c) $313 \times 118 = 118 \times \mathbf{313}$

(d) $5982 \times \mathbf{0} = 0$

(e) $8395 \times \mathbf{1} = 8395$

(f) $405 \times 321 + \mathbf{85}) = (4705 \times 321) + (405 \times 85)$

(g) $525 \times (488 + 95 + 12) = (525 \times \mathbf{488}) + (525 \times 95) + (\mathbf{525} \times 12)$

(h) $23 \times (289 + 132) = (23 \times 289) + (\mathbf{23} \times 132)$

(i) $12 \times (65 + 181) = (13 \times \mathbf{65}) + (13 \times \mathbf{181})$

(j) $\mathbf{19} \times (908 \times 52) = (908 \times 52) \times 19$

2. Find the products :

(a) $188 \times 10 = 1880$

(b) $95 \times 100 = 9500$

(c) $75 \times 1000 = 75000$

(d) $65 \times 2000 = (65 \times 2) \times 1000$
$= 70 \times 1000$
$= 70000$

(e) $123 \times 20 = 123 \times 2) \times 10$
$= 246 \times 10$
$= 2460$

(f) $125 \times 30 = (125 \times 3) \times 10$
$= 375 \times 10$
$= 3750$

(g) $405 \times 40 = (405 \times 4) \times 10$
$= 1620 \times 10$
$= 16200$

(h) $335 \times 500 = (335 \times 5) \times 100$
$= 1675 \times 100$
$= 167500$

(i) $1532 \times 400 = (1532 \times 4) \times 100$
$= 6128 \times 100$
$= 612800$

(j) $172 \times 4000 = (172 \times 4) \times 1000$
$= 688 \times 1000$
$= 688000$

(k) $95 \times 3000 = (95 \times 3) \times 1000$
$= 285 \times 1000$
$= 285000$

(l) $367 \times 2000 = (367 \times 2) \times 1000$
$= 734 \times 1000$
$= 734000$

Exercise - 4.2

1. Find the products :

(a)
$$\begin{array}{r} 315 \\ \times\ 33 \\ \hline 10935 \end{array}$$

(b)
$$\begin{array}{r} 513 \\ \times\ 55 \\ \hline 28215 \end{array}$$

(c)
$$\begin{array}{r} 865 \\ \times\ 65 \\ \hline 56225 \end{array}$$

(d)
$$\begin{array}{r} 975 \\ \times\ 85 \\ \hline 82875 \end{array}$$

(e)
$$\begin{array}{r} 2105 \\ \times\ 11 \\ \hline 23155 \end{array}$$

(f)
$$\begin{array}{r} 1525 \\ \times\ 12 \\ \hline 18300 \end{array}$$

(g)
$$\begin{array}{r} 2122 \\ \times\ 16 \\ \hline 33952 \end{array}$$

(h)
$$\begin{array}{r} 1855 \\ \times\ 22 \\ \hline 40810 \end{array}$$

2. Multiply :

(a)
$$\begin{array}{r} 125 \\ \times\ 117 \\ \hline 14625 \end{array}$$

(b)
$$\begin{array}{r} 375 \\ \times\ 220 \\ \hline 82500 \end{array}$$

(c)
$$\begin{array}{r} 395 \\ \times\ 143 \\ \hline 56485 \end{array}$$

(d)
$$\begin{array}{r} 460 \\ \times\ 238 \\ \hline 109480 \end{array}$$

(e)
$$\begin{array}{r} 2131 \\ \times\ 135 \\ \hline 287685 \end{array}$$

(f)
$$\begin{array}{r} 4190 \\ \times\ 230 \\ \hline 963700 \end{array}$$

(g)
$$\begin{array}{r} 4\,9\,0\,2 \\ \times\ 1\,8\,2 \\ \hline 8\,9\,2\,1\,6\,4 \end{array}$$

(h)
$$\begin{array}{r} 2\,9\,3\,5 \\ \times\ 3\,1\,0 \\ \hline 9\,0\,9\,8\,5\,0 \end{array}$$

3. Multiply using expanded notation :

(a) $557 \times 73 = 557 \times (70 + 3)$
$= 557 \times 70 + 557 \times 3$
$= (557 \times 7) \times 10 + 557 \times 3$
$= 3899 \times 10 + 1671$
$= 38990 + 1671$
$= 40661$

(b) $569 \times 39 = 569 \times (30 + 9)$
$= 569 \times 30 + 569 \times 9$
$= (569 \times 3) \times 10 + 5121$
$= 1707 \times 10 + 5121$
$= 17070 + 5121$
$= 18777$

(c) $723 \times 79 = 723 \times (70 + 9)$
$= 723 \times 70 + 723 \times 9$
$= (723 \times 7) \times 10 + 6507$
$= 5061 \times 10 + 6507$
$= 50610 + 6507$
$= 57117$

(d) $998 \times 103 = 998 \times (100 + 3)$
$= 998 \times 100 + 998 \times 3$
$= 99800 + 2994$
$= 102794$

(e) $3000 \times 70 = (3000 \times 7) \times 10$
$= 21000 \times 10 = 210000$

(f) $5250 \times 105 = 5250 \times (100 + 5)$
$= 5250 \times 100 + 5250 \times 5$
$= 525000 + 26250$
$= 78750$

(g) 6120×128

$$
\begin{aligned}
&= 120 \times (100 + 20 + 8) \\
&= 6120 \times 100 + 6120 \times 20 + 6120 \times 8 \\
&= 612000 + (6120 \times 2) \times 10 + 6120 \times 8 \\
&= 612000 + 12240 \times 10 + 48960 \\
&= 612000 + 12400 + 48960 \\
&= 673360
\end{aligned}
$$

(h) 299×300

$$
\begin{aligned}
&= (299 \times 3) \times 100 \\
&= 897 \times 100 \\
&= 89700
\end{aligned}
$$

(i) 3770×255

$$
\begin{aligned}
&= 3770 \times (200 + 50 + 5) \\
&= 3770 \times 200 + 3770 \times 50 + 3770 \times 5 \\
&= (3770 \times 2) \times 100 + (3770 \times 5) \times 10 + 3770 \times 5 \\
&= 7540 \times 100 + 18850 \times 10 + 18850 \\
&= 754000 + 188500 + 18850 \\
&= 961350
\end{aligned}
$$

(j) 3202×311

$$
\begin{aligned}
&= 3202 \times (300 + 11) \\
&= 3203 \times 300 + 3202 \times 11 \\
&= (3202 \times 3) \times 100 + 3202 \times 11 \\
&= 9606 \times 100 + 3202 \times (10 + 1) \\
&= 960600 + 3202 \times 10 + 3202 \times 1 \\
&= 960600 + 32020 + 3202 \\
&= 995822
\end{aligned}
$$

(k) 7113×127

$$
\begin{aligned}
&= 7113 \times (100 + 20 + 7) \\
&= 7113 \times 100 + 7113 \times 20 + 7113 \times 7 \\
&= 711300 + (7113 \times 2) \times 10 + 49791 \\
&= 711300 + 14226 \times 10 + 49791 \\
&= 711300 + 142260 + 49791 \\
&= 903351
\end{aligned}
$$

(l) 4231×231

$$
\begin{aligned}
&= 4231 \times (200 + 30 + 1) \\
&= 4231 \times 200 + 4231 \times 30 + 4231 \times 1 \\
&= (4231 \times 2) \times 100 + (4231 \times 3) \times 10 + 4231 \\
&= 8462 \times 100 + 12693 \times 10 + 4231 \\
&= 846200 + 126930 + 4231 \\
&= 877361
\end{aligned}
$$

4. Fill in the boxes :

(a)

		7	8	9
		×	9	8
	6	**3**	**1**	2
7	1	**0**	1	**0**
7	**7**	3	2	**2**

(b)

		1	5	7	5
		×	2	3	7
	1	1	0	2	5
	4	7	2	5	0
3	1	5	0	0	0
3	7	3	2	7	5

Exercise - 4.3

1. Cost of a suitcase = ₹ 955

Cost of 76 suitcase = ₹ 955 × 76

= ₹ 72580

		9	5	5
		×	7	6
	5	7	3	0
6	6	8	5	0
7	2	5	8	0

Thus, the cost of 76 suitcase are ₹ 72580.

2. Cost of a radio set = ₹ 1750

Cost of 39 radio sets = ₹ 1750 × 39

= ₹ 68250

	1	7	5	0
		×	3	9
1	5	7	5	0
5	2	5	0	0
6	8	2	5	0

Thus, the cost of 39 suitcase are ₹ 68250.

3. Cost of a refrigerator = ₹ 7286

Cost of 59 refrigerator = ₹ 7286 × 59

= ₹ 429874

		7	2	8	6
			×	5	9
	6	5	5	7	4
3	6	4	3	0	0
4	2	9	8	7	4

Hence, the required cost is ₹ 429874.

4. Number of oranges in one basket = 742

Number of oranges in 128 baskets = 742 × 128

= 94976

		7	4	2
	×	1	2	8
	5	9	3	6
1	4	8	4	0
7	4	2	0	0
9	4	9	7	6

Hence, 94976 oranges are in 128 baskets.

5. The monthly fee of a student = ₹ 850

The monthly fee of 137 students = ₹ 850 × 137

= ₹ 116450

$$\begin{array}{r} 850 \\ \times\ 137 \\ \hline 5950 \\ 25500 \\ 85000 \\ \hline 116450 \end{array}$$

Hence, ₹ 116450 has been collected from that class.

6. Number of seats in one cinema = 686

Number of seats in 593 cinemas = 689 × 593

= 406798

$$\begin{array}{r} 686 \\ \times\ 593 \\ \hline 2058 \\ 61740 \\ 343000 \\ \hline 406798 \end{array}$$

Hence, 406798 seats are in 593 cinemas.

7. Price of tickets of one people = ₹ 85

∴ Prime of ticket of 7287 peoples = ₹ 85 × 7287

= ₹ 619395

$$\begin{array}{r} 7287 \\ \times\ 85 \\ \hline 36465 \\ 582960 \\ \hline 619395 \end{array}$$

Hence, ₹ 61935 was obtained sale of tickets.

8. Number of seats in one row = 759

Number of seats in 391 rows = 759 × 391

= 296769

$$\begin{array}{r} 759 \\ \times\ 391 \\ \hline 759 \\ 68310 \\ 227700 \\ \hline 296769 \end{array}$$

Hence, the total number of seats are in auditorium = 296769

9. Number of pieces in one grass = 144

Number of pieces in 2176 grasses = 144 × 2176

= 313344

$$\begin{array}{r} 2176 \\ \times\ 144 \\ \hline 8704 \\ 87040 \\ 217600 \\ \hline 313344 \end{array}$$

Hence, 313344 pieces are in 2176 grasses.

10. Number of apples in one boy = 375

Number of apples in 2206 boys = 375 × 2206

= 827250

$$\begin{array}{r} 2206 \\ \times\ 375 \\ \hline 11030 \\ 154420 \\ 661800 \\ \hline 827250 \end{array}$$

Hence, 827250 apples are in 2206 bags.

Chapter 5 : Division

Exercise - 5.1

1. For each of the following multiplication facts, write the possible division facts :

The possible division facts :

(a) $20 \div 5 = 4$ (b) $81 \div 9 = 9$ (c) $72 \div 9 = 8$

(d) $45 \div 5 = 9$ (e) $54 \div 6 = 9$ (f) $63 \div 7 = 9$

2. Find the quotient :

(a)

```
7 ) 3 5 ( 5
  - 3 5
    ----
      0
```

Hence, quotient = 5

(b)

```
9 ) 5 4 ( 6
  - 5 4
    ----
      0
```

Hence, quotient = 6

(c)

```
5 ) 7 5 ( 15
  - 5 ↓
    ----
    2 5
  - 2 5
    ----
      0
```

Hence, quotient = 15

(d)

```
6 ) 4 8 ( 8
  - 4 8
    ----
      0
```

Hence, quotient = 8

(e)

```
9 ) 9 ( 1
  - 9
    ---
    0
```

Hence, quotient = 1

(f)

```
8 ) 6 4 ( 8
  - 6 4
    ----
      0
```

Hence, quotient = 8

(g)

```
5 ) 4 5 ( 9
  - 4 5
    ----
      0
```

Hence, quotient = 9

(h)

```
8 ) 2 4 ( 3
  - 2 4
    ----
      0
```

Hence, quotient = 3

3. Fill in the blanks :

(a) $1834 \div 1 = 1834$ (b) $0 \div 3552 = 0$

(c) $5335 \div 1 = 5335$ (d) $215 \div 215 = 1$

(e) $341 \div 341 = 1$ (f) $7961 \div 1 = 7961$

Exercise - 5.2

1. Divide :

(a)

```
      1962
5 ) 3924
   -2
    19
  - 18
     12
   - 12
       4
     - 4
       0
```

Hence, $3924 \div 2 = 1962$

(b)

```
      1307
5 ) 6535
   -5
    15
  - 15
      3
    - 0
     35
   - 35
      0
```

Hence, $6535 \div 5 = 1307$

(c)

```
      4226
2 ) 8452
   -8
    4
  - 4
     5
   - 4
     12
   - 12
      0
```

Hence, $8452 \div 2 = 4226$

(d)

```
      1408
4 ) 5632
   - 4
    16
  - 16
      3
    - 0
     32
   - 32
      0
```

Hence, $5632 \div 4 = 1408$

(e)

```
      707
7 ) 4949
   - 49
     4
    - 0
     49
   - 49
      0
```

Hence, $4949 \div 7 = 707$

(f)

```
      1111
5 ) 5555
   -5
    5
  - 5
    5
  - 5
    5
  - 5
    0
```

Hence, $5555 \div 5 = 1111$

2. Work out these division sums in your note book and write the quotient and the remainder :

(a)	$3452 \div 8$	(b)	$5867 \div 6$	(c)	$6823 \div 7$
	Q = 341		Q = 977		Q = 974
	R = 4		R = 5		R = 5
(d)	$8489 \div 5$	(e)	$7667 \div 4$	(f)	$9293 \div 9$
	Q = 1697		Q = 1916		Q = 1032
	R = 4		R = 3		R = 5

3. Find the quotient and the remainder :

(a)

```
      1138
4 ) 4555
   - 4
     5
   - 4
     15
   - 12
      35
     - 32
       3
```

Hence, quotient = 1138
and, Remainder = 3

(b)

```
      698
3 ) 2095
   - 18
     29
   - 27
      25
     - 24
       1
```

Hence, quotient = 698
and remainder = 1

(c)

```
      905
5 ) 4528
   - 45
     2
   - 0
     28
   - 25
      3
```

Hence, quotient = 905
and, Remainder = 3

(d)

```
      913
7 ) 6395
   - 63
     9
   - 7
     25
   - 21
      4
```

Hence, quotient = 913
and remainder = 4

(c)

```
      1063
  9 ) 9572
    - 9
      ---
       5
     - 0
      ---
       57
     - 54
      ----
        32
      - 27
      ----
         5
```

Hence, quotient = 1063
and, Remainder = 5

(d)

```
      1951
  4 ) 7805
    - 4
      ---
      38
    - 36
      ----
       20
     - 20
      ----
        5
      - 4
      ---
        1
```

Hence, quotient = 1951
and remainder = 1

4. Divide and verify your answer :

(a)

```
      936
  7 ) 6553
    - 63
      ---
       25
     - 21
      ----
        43
      - 42
      ----
         1
```

Thus, 6553 ÷ 7 gives
Quotient = 936 and
Remainder = 1

Verification :

We know that, dividend = (Divisor × Quotient) + Remainder

```
    9 3 6 ←— Quotient
      × 7 ←— Divisor
  -------
  6 5 5 2
      + 1 ←— Remainder
  -------
  6 5 5 3 ←— Dividend
```

Hence, the answer is correct.

(b)

```
      1063
8 ) 8509
    - 8
      5
    - 0
      50
    - 48
       29
     - 24
        5
```

Thus, 8509 ÷ 8 gives
Quotient = 1063 and Remainder = 5

Verification :

We know that, dividend = (Divisor × Quotient) + Remainder
= 8 × 1063 + 5
= 8504 + 5 = 8509 = Dividend

Hence, the answer is correct.

(c)

```
      1954
6 ) 9925
    - 6
      39
    - 36
       32
     - 30
        25
      - 24
         1
```

Thus, 9925 ÷ 6 gives
Quotient = 1654 and Remainder = 1

Verification :

We know that, dividend = (Divisor × Quotient) + Remainder
= 6 × 1654 + 1
= 9924 + 1 = 9925 = Dividend

Hence, the answer is correct.

(c)

```
     1750
3 ) 5251
   - 3
     22
   - 21
      15
    - 15
       1
     - 0
       1
```

Thus, 5251 ÷ 3 gives
Quotient = 1750 and Remainder = 1

Verification :

We know that, dividend = (Divisor × Quotient) + Remainder
= 3 × 1750 + 1
= 5250 + 1
= 5251 = Dividend

Hence, the answer is correct.

5. Find the quotient :

(a)

```
     8292
7 ) 58044
   - 56
     20
   - 14
      64
    - 63
       14
     - 14
        0
```

Hence, quotient = 8292

(b)

```
     7449
9 ) 67041
   - 63
     40
   - 36
      44
    - 36
       81
     - 81
        0
```

Hence, quotient = 7449

(c)

```
      11971
6 ) 71826
  - 6
     11
   - 6
     58
   - 54
      42
    - 42
       6
     - 6
       0
```

Hence, quotient = 11971

(d)

```
      4727
4 ) 18908
  - 16
     29
   - 28
      10
     - 8
      28
    - 28
       0
```

Hence, quotient = 4727

6. Find the quotient and the remainder :

(a)

```
      15764
4 ) 63058
  - 4
     23
   - 20
      30
    - 28
       25
     - 24
        18
      - 16
         2
```

Hence, quotient = 15764
and remainder = 2

(b)

```
      11503
7 ) 80523
  - 7
     10
   - 3
      35
    - 35
       2
     - 0
      23
    - 21
       2
```

Hence, quotient = 11503
and remainder = 2

(c)

```
      5972
5 ) 29863
  - 25
     48
   - 45
      36
    - 35
       13
     - 10
        3
```

Hence, quotient = 5972
and remainder = 3

(d)

```
      6345
9 ) 57108
  - 54
     31
   - 27
      40
    - 36
       48
     - 45
        3
```

Hence, quotient = 6345
and remainder = 3

Exercise - 5.3

1. Find the quotient :

(a)

```
      32
11 ) 352
   - 33
     22
   - 22
      0
```

Hence, 352 ÷ 11 gives
Quotient = 32

(b)

```
      25
25 ) 625
   - 50
    125
  - 125
      0
```

Hence, 625 ÷ 25 gives
Quotient = 25

(c)

```
      28
29 ) 841
   - 58
    261
  - 261
      0
```

Hence, 841 ÷ 29 gives
Quotient = 28

(d)

```
      55
43 ) 2365
   - 215
    215
  - 215
      0
```

Hence, 2365 ÷ 43 gives
Quotient = 55

(e)

```
      63
78)4914
  – 468
    234
  – 234
      0
```

Hence, 4914 ÷ 78 gives
Quotient = 63

(f)

```
      265
75)19875
  – 150
    487
  – 450
    375
  – 375
      0
```

Hence, 19875 ÷ 78 gives
Quotient = 265

2. Find the quotient and the remainder :

(a)

```
      26
18)475
  – 36
   115
  – 108
     7
```

Hence, 475 ÷ 18 gives
Quotient = 26 and
Remainder = 7

(b)

```
      42
22)943
  – 88
   63
  – 44
   19
```

Hence, 943 ÷ 22 gives
Quotient = 42 and
Remainder = 19

(c)

```
      24
12)293
  – 24
   53
  – 48
    5
```

Hence, 293 ÷ 12 gives
Quotient = 24 and
Remainder = 5

(d)

```
      24
35)874
  – 70
   174
  – 140
    34
```

Hence, 874 ÷ 35 gives
Quotient = 24 and
Remainder = 34

(e)

```
      15
42)651
   -42
    231
   -210
     21
```

Hence, 651 ÷ 42 gives
Quotient = 15 and
Remainder = 21

(f)

```
      14
53)756
   -53
    226
   -212
     14
```

Hence, 756 ÷ 53 gives
Quotient = 14 and
Remainder = 14

3. Work out these division sums in your notebook and write the quotient and the remainder :

(a)

```
      561
14)7857
   -70
    85
   -84
     17
    -14
      3
```

Hence, Q = 561 and R = 3

(b)

```
      315
18)5679
   -54
    27
   -18
     99
    -90
      9
```

Hence, Q = 315 and R = 9

(c)

```
      396
17)6739
   -51
    163
   -153
     109
    -102
       7
```

Hence, Q = 396 and R = 7

(d)

```
      208
23)4795
   -46
    19
    -0
    195
   -184
     11
```

Hence, Q = 208 and R = 11

(e)

```
      151
46)6973
  – 46
   237
  – 230
     73
   – 46
     27
```

Hence, Q = 151 and R = 27

(f)

```
      223
37)8253
  – 74
    85
  – 74
    113
  – 111
      2
```

Hence, Q = 223 and R = 2

(g)

```
      161
57)9215
  – 57
   351
  – 342
     95
   – 57
     38
```

Hence, Q = 161 and R = 38

(h)

```
      51
89)5487
  – 534
    147
   – 89
     58
```

Hence, Q = 51 and R = 58

(i)

```
      170
47)7993
  – 47
   329
  – 329
      3
    – 0
      3
```

Hence, Q = 170 and R = 3

(j)

```
      925
97)89753
  – 873
    245
   – 194
     513
   – 485
     28
```

Hence, Q = 925 and R = 97

(k)

```
      1314
75 ) 97556
   – 75
     225
   – 215
      105
    – 75
      306
    – 300
        6
```

Hence, Q = 1314 and R = 6

(l)

```
      1125
79 ) 88940
   – 79
     99
   – 79
     204
   – 158
      460
    – 395
       65
```

Hence, Q = 1125 and R = 65

4. Dividend = 8680 and divisor = 35

```
      248
35 ) 8680
   – 70
    168
  – 140
     280
   – 280
       0
```

Hence, quotient = 248

5. Dividend = 8211, quotient = 69 and remainder = 0

We know that, Dividend = Divisor × quotient + Remainder

$$\therefore \quad \text{quotient} = \frac{\text{Dividend} - \text{Remainder}}{\text{Divisor}}$$

$$= \frac{8211 - 0}{69}$$

$$= \frac{8211}{69}$$

$$= 119$$

Hence, quotient = 119

6. Quotient = 422, Divisor = 68 and remainder = 29

We know that, Dividend = Divisor × Quotient + Remainder

= 68 × 422 + 29

= 28696 + 29

= 28725

Hence, the dividend = 28725

7. Write the correct digits in the circles :

(a)

```
        2 4
35 ) 8 4 5
   – 7 0 ↓
     1 4 5
   – 1 4 0
         5
```

(b)

```
        1 4 2
20 ) 2 8 4 0
   – 2 0 ↓ |
     8 4   |
   – 8 0 ↓
       4 0
     – 4 0
         0
```

Exercise - 5.4

1. Find the quotient and the remainder :

(a)

```
      4
10 ) 4 5
   – 4 0
       5
```

Hence, quotient = 4
and remainder = 5

(b)

```
      9
10 ) 9 0
   – 9 0
       0
```

Hence, quotient = 9
and remainder = 0

(c)

```
      22
10 ) 220
   – 20 ↓
     20
   – 20
      0
```

Hence, quotient = 22
and remainder = 0

(d)

```
      94
10 ) 940
   – 90 ↓
     40
   – 40
      0
```

Hence, quotient = 94
and remainder = 0

(e)

```
      12
10 ) 125
   – 10 ↓
     25
   – 20
      5
```

Hence, quotient = 12
and remainder = 5

(f)

```
      39
10 ) 395
   – 30 ↓
     95
   – 90
      5
```

Hence, quotient = 39
and remainder = 5

(g)

```
        8
100 ) 819
    – 800
       19
```

Hence, quotient = 8
and remainder = 19

(h)

```
        20
40 ) 800
   – 80
       0
     – 0
       0
```

Hence, quotient = 20
and remainder = 0

(i)

```
        25
100 ) 2524
    – 200
      524
    – 500
       24
```

Hence, quotient = 25
and remainder = 24

(j)

```
        90
100 ) 9005
    – 900
        5
      – 0
        5
```

Hence, quotient = 90
and remainder = 5

(k)

```
        112
80 ) 9003
   – 80
     100
   – 80
     203
   – 160
      43
```

Hence, quotient = 112
and remainder = 43

(l)

```
        85
100 ) 8582
    – 800
      582
    – 500
       82
```

Hence, quotient = 85
and remainder = 82

(m)

```
        79
100 ) 7995
    – 700
      995
    – 900
       95
```

Hence, quotient = 79
and remainder = 95

(n)

```
         6
1000 ) 6832
     – 6000
       832
```

Hence, quotient = 6
and remainder = 832

(o)

```
        59
100 ) 5963
    – 500
      963
    – 900
       63
```

Hence, quotient = 59
and remainder = 63

(p)

```
        39
20 ) 780
   – 60
    180
   – 180
      0
```

Hence, quotient = 39
and remainder = 0

(q)

```
        8
90 ) 720
   – 720
      0
```

Hence, quotient = 8
and remainder = 0

(r)

```
        12
100 ) 1225
    – 100
      225
    – 200
       25
```

Hence, quotient = 12
and remainder = 25

(s)

```
        3
30 ) 90
   – 90
     0
```

Hence, quotient = 3
and remainder = 0

(t)

```
        11
80 ) 880
   – 80
     80
   – 80
      0
```

Hence, quotient = 11
and remainder = 0

(u)

```
          4
1000 ) 4790
     – 4000
       790
```

Hence, quotient = 4 and remainder = 790

Exercise - 5.5

1. Total cost of cooking pans = ₹ 5472

Cost of a cooking pans = ₹ 36

∴ Number of cooking pans = ₹ 5472 ÷ 36

```
      152
36)5472
   - 36
    187
  - 180
     72
   - 72
      0
```

Hence, 152 cooking pans can be bought.

2. ∵ Mangoes are in 43 boxes = 6192

∴ Mangoes in each box = 6192 ÷ 43

```
      144
42)6192
   - 43
    189
  - 172
     172
   - 172
       0
```

Hence, 144 mangoes are in each box.

3. Total earn money = ₹ 36754

Number of students = 23

∴ Stare of each student = ₹ 36754 ÷ 23

```
      1598
23)36754
   - 23
    137
  - 115
     225
   - 207
      184
    - 184
        0
```

Hence, the share of each student is ₹ 1598.

4. Total number of army men = 16275

Number of rows = 31

∴ Number of army men in each row = 16275 ÷ 31

```
      525
31 ) 16275
   - 155
      77
    - 62
      155
    - 155
        0
```

Hence, 525 army men are in each row.

5. ∵ Annual or 12 months rent of Junta flat = 18480

∴ Monthly rent of that flat = 18480 ÷ 12

```
      1540
12 ) 18480
   - 12
     64
   - 60
      48
    - 48
       0
     - 0
       0
```

Hence, monthly rent of that flat is 1540

6. Largest 5-digti number = 99999

Largest 5-digit number divide by 83 = 99999 ÷ 83

```
      1204
83 ) 99999
   - 83
     169
   - 166
       39
     - 0
      399
    - 332
       67
```

Hence, quotient = 1204 and remainder = 67

7. To get the result, First we divided 37969 by 65, we get.

37969 ÷ 65

```
        584
65 ) 37969
   - 329
     546
   - 520
       269
     - 260
         9
```

If we subtract Remainder i.e., 9 from the dividend i.e., 37969 then this number exactly divisor by 65.

Thus, the required number = 37969 – 9 = 37960

Hence, required number is 9.

8. ∵ Cost of 89 radios = ₹ 77875

∴ Cost of one radio = ₹ 77875 ÷ 89

```
        875
89 ) 77875
   - 712
     667
   - 623
       445
     - 445
         0
```

Hence, the cost of one radio is ₹ 875.

9. To get the required number of days. We divide 16345 by 35.

Number of days = 16345 ÷ 35

```
        467
35 ) 16345
   - 140
     234
   - 210
       245
     - 245
         0
```

Hence, the required days are 467.

Chapter 6 : Measurements of Length, Weight and Capacity

Exercise - 6.1

1. Convert into centimetres :

(a) We have that,

$1\text{ m} = 100\text{ cm}$

$\therefore \quad 15\text{ m} = 15 \times 100\text{ cm}$

$= 1500\text{ cm}$

(b) $8\text{ m} = 8 \times 100\text{ cm}$

$= 800\text{ cm}$

(c) $6\text{ m } 10\text{ cm} = 6\text{ m} + 10\text{ cm}$

$= 6 \times 100\text{ cm} + 10\text{ cm}$

$= (600 + 10)\text{ cm}$

$= 610\text{ cm}$

(d) $2\text{m } 6\text{ dm } 5\text{ cm} = 2\text{ m} + 6\text{ dm} + 5\text{ cm}$

$= 2 \times 100\text{ cm} + 6 \times 10\text{ cm} + 5\text{ cm}$ [$\because 1\text{ m} = 100\text{ cm}$,

$= 200\text{ cm} + 60\text{ cm} + 5\text{ cm}$ $1\text{ dm} = 10\text{ cm}$]

$= 265\text{ cm}$

(e) $3\text{ dm} = 3 \times 10\text{ cm}$ [$\because 1\text{ cm} = 10\text{ cm}$]

$= 30\text{ cm}$

(f) $4\text{ dm } 6\text{ cm} = 4\text{ dm} + 6\text{ cm}$

$= 4 \times 10\text{ cm} + 6\text{ cm}$

$= 40\text{ cm} + 6\text{ cm}$

$= 46\text{ cm}$

(g) $8\text{ m } 6\text{ dm } 9\text{ cm} = 8\text{ m} + 6\text{ dm} + 9\text{ cm}$

$= 8 \times 100\text{ cm} + 6 \times 10\text{ cm} + 9\text{ cm}$

$= 800\text{ cm} + 60\text{ cm} + 9\text{ cm}$

$= 869\text{ cm}$

(h) $16\text{ m} = 16 \times 100\text{ cm}$

$= 1600\text{ cm}$

2. Express as metres and centimetres :

(a) 975 cm $= (900 + 75)$ cm

$= 900$ cm $+ 75$ cm

$= \frac{900}{100}$ m $+ 75$ cm $\quad [\because 1 \text{ cm} = \frac{1}{100} \text{ m}]$

$= 9$ m $+ 75$ cm

$= 9$ m 75 cm

(b) 1970 cm $= (1900 + 70)$ cm

$= 1900$ cm $+ 70$ cm

$= \frac{1900}{100}$ cm $+ 70$ cm

$= 19$ m $+ 70$ cm

$= 19$ m 70 cm

(c) 4502 cm $= (4500 + 2)$ cm

$= 4500$ cm $+ 2$ cm

$= \frac{4500}{100}$ m $+ 2$ cm

$= 45$ m $+ 2$ cm

$= 45$ m 2 cm

(d) 97 dm $= 97 \times 10$ cm

$= 970\text{ cm}$

$= (900 + 70)\text{ cm}$

$= 900\text{ cm} + 70\text{ cm}$

$= \frac{900}{100}\text{ m} + 70\text{ cm}$

$= 9\text{ m} + 70\text{ cm} = 9\text{ m } 70\text{ cm}$

(e) 395 dm $= 295 \times 10\text{ cm}$

$= 3950\text{ cm}$

$= (3900 + 50)\text{ cm}$

$= 3900\text{ cm} + 50\text{ cm}$

$= \frac{3900}{100}\text{ m} + 50\text{ cm}$

$= 39\text{ m} + 50\text{ cm} = 39\text{ m } 50\text{ cm}$

(f) 27 dm 8 cm $= 27\text{ dm} + 8\text{ cm}$

$= 27 \times 10\text{ cm} + 8\text{ cm}$

$= 270\text{ cm} + 8\text{ cm}$

$= (200 + 7)\text{ cm} + 8\text{ cm}$

$= \frac{200}{100}\text{ m} + 7\text{ cm} + 8\text{ cm}$

$= 2\text{m} + 15\text{ cm} = 2\text{ m } 15\text{ cm}$

(g) 15 dm 60 cm $= 15\text{ dm} + 60\text{ cm}$

$= 15 \times 10\text{ cm} + 60\text{ cm}$

$= 150\text{ cm} + 60\text{ cm}$

$= 150\text{ cm} + 60\text{ cm}$

$= (100 + 50)\text{ cm} + 60\text{ cm}$

$= \frac{100}{100}\text{ m} + 50\text{ cm} + 60\text{ cm}$

$= 1\text{ m} + (100 + 10)\text{ cm}$

$= 1\text{ m} + \frac{100}{100}\text{ m} + 10\text{ cm}$

$= 1\text{ m} + 1\text{ m} + 10\text{ cm}$

$= 2\text{ m} + 10\text{ cm} + 2\text{ m } 10\text{ cm}$

(h) $4450\text{ cm} = (4400 + 50)\text{ cm}$

$= 4400\text{ cm} + 50\text{ cm}$

$= \frac{4400}{100}\text{ m} + 50\text{ cm}$

$= 44\text{ m} + 50\text{ cm}$

$= 44\text{ m } 50\text{ cm}$

3. Express in m, dm and cm :

(a) $815\text{ cm} = (800 + 10 + 5)\text{ cm}$

$= 800\text{ cm} + 10\text{ cm} + 5\text{ cm}$

$= \frac{800}{100}\text{m} + \frac{10}{10}\text{dm} + 5\text{cm}$

$= 8\text{ m} + 1\text{ dm} + 5\text{ cm}$

$= 8\text{ m } 1\text{ dm } 5\text{ cm}$

(b) $50\text{ dm } 9\text{ cm} = 50\text{ dm} + 9\text{ cm}$

$= 50 \times 10\text{ cm} + 9\text{ cm}$

$= 500\text{ cm} + 9\text{ cm}$

$= \frac{500}{100}\text{ m} + 9\text{ cm}$

$= 5\text{ m} + 9\text{ cm} = 5\text{ m } 9\text{ m}$

(c) $4565\text{ cm} = (4500 + 60 + 5)\text{ cm}$

$= 4500\text{ cm} + 60\text{ cm} + 5\text{ cm}$

$= \frac{4500}{100}\text{m} + \frac{60}{10}\text{dm} + 5\text{cm}$

$= 45\text{ m} + 6\text{ dm} + 5\text{ cm}$

$= 45\text{ m } 6\text{ dm } 5\text{ cm}$

(d) $97\text{ dm } 8\text{ cm} = 97\text{ dm} + 8\text{ cm}$

$= 97 \times 10\text{ cm} + 8\text{ cm}$

$= (900 + 70)\text{ cm} + 8\text{ cm}$

$= \frac{900}{100}\text{m} + \frac{70}{10}\text{dm} + 8\text{cm}$

$= 9\text{ m} + 7\text{ dm} + 8\text{ cm}$

$= 9\text{ m } 7\text{ dm } 8\text{ cm}$

(e) 23 m 20 dm $= 23\text{ m} + 20\text{ dm}$

$= 23\text{ m} + 20 \times 10\text{ cm}$

$= 23\text{ m} + 200\text{ cm}$

$= 23\text{ m} + \frac{200}{100}\text{ m}$

$= 23\text{ m} + 2\text{ m} = 25\text{ m}$

(f) 14 m 15 dm 19 cm $= 14\text{ m} + 15\text{ dm} + 19\text{ cm}$

$= 14\text{ m} + 15 \times 10\text{ cm} + 19\text{ cm}$

$= 14\text{ m} + 150\text{ cm} + 19\text{ cm}$

$= 14\text{ m} + (100 + 50)\text{ cm} + 19\text{ cm}$

$= 14\text{ m} + \frac{100}{100}\text{ m} + 50\text{ cm} + 19\text{ cm}$

$= 14\text{ m} + 1\text{ m} + 69\text{ cm}$

$= 15\text{ m} + 60\text{ cm} + 9\text{ cm}$

$= 15\text{ m} + \frac{60}{10}\text{ dm} + 9\text{ cm}$

$= 15\text{ m} + 6\text{ dm} + 9\text{ cm}$

$= 15\text{ m } 6\text{ dm } 9\text{ cm}$

4. Convert into metres :

(a) 12 km $= 12 \times 1000\text{ m}$

$= 12000\text{ m}$

(b) 64 km $= 64 \times 1000\text{ m}$

$= 64000\text{ m}$

(c) 95 km 900 m $= 95 \times 1000\text{ m} + 900\text{ m}$

$= 95000\text{ m} + 900\text{ m}$

$= 95900\text{ m}$

(d) 35 km 49 m $= 35\text{ km} + 49\text{ m}$

$= 35 \times 1000\text{ m} + 49\text{ m}$

$= 35000\text{ m} + 49\text{ m}$

$= 35049\text{ m}$

(e) 89 km 75 m $= 89\text{ km} + 75\text{ m}$

$= 89 \times 1000\text{ m} + 75\text{ m}$

$= 89000\text{ m} + 75\text{ m}$

$= 89075\text{ m}$

(f) 87 km 890 m $= 87\text{ km} + 890\text{ m}$

$= 87 \times 1000\text{ m} + 890\text{ m}$

$= 87000\text{ m} + 890\text{ m}$

$= 87890\text{ m}$

5. Convert into kilometres and metres :

(a) 8545 m $= (8000 + 545)\text{ m}$

$= \frac{8000}{1000}\text{ km} + 545\text{ m}$

$= 8\text{ km} + 545\text{ m}$

$= 8\text{ km } 545\text{ m}$

(b) 6974 m $= (6000 + 974)\text{ m}$

$= 6000\text{ m} + 974\text{ m}$

$= \frac{6000}{1000}\text{ km} + 974\text{ m}$

$= 6\text{ km} + 974\text{ m} = 6\text{ km } 974\text{ m}$

(c) 8044 m $= (8000 + 44)\text{ m}$

$= 8000\text{ m} + 44\text{ m}$

$= \frac{8000}{1000}\text{ km} + 44\text{ m}$

$= 8\text{ km} + 44\text{ m}$

$= 8\text{ km } 44\text{ m}$

(d) 93537 m $= (90000 + 3000 + 537)\text{ m}$

$= 90000\text{ m} + 3000\text{ m} + 537\text{ m}$

$= \frac{90000}{1000}\text{ km} + \frac{3000}{1000}\text{ km} + 537\text{ m}$

$= 90\text{ km} + 3\text{ km} + 537\text{ m}$

$= 93\text{ km} + 537\text{ m}$

$= 93\text{ km } 537\text{ m}$

(e) 89045 m $= (80000 + 9000 + 45)\text{ m}$

$= 80000\text{ m} + 9000\text{ m} + 45\text{ m}$

$= \frac{80000}{1000}\text{ km} + \frac{9000}{1000}\text{ km} + 45\text{ m}$

$= 80\text{ km} + 9\text{ km} + 45\text{ m}$

$= 89\text{ km } 45\text{ m}$

(f) 77474 m $= (70000 + 7000 + 474)\text{ m}$

$= 70000\text{ m} + 7000\text{ m} + 474\text{ m}$

$= \frac{70000}{1000}\text{ km} + \frac{7000}{1000}\text{ km} + 474\text{ m}$

$= 70\text{ km} + 7\text{ km} + 474\text{ m}$

$= 77\text{ km} + 474\text{ m}$

$= 77\text{ km } 474\text{ m}$

(g) 8052 m $= (8000 + 52)\text{ m}$

$= 8000\text{ m} + 52\text{ m}$

$= \frac{8000}{1000}\text{ km} + 52\text{ m}$

$= 8\text{ km } 52\text{m}$

(h) 8750 m $= (8000 + 750)\text{ m}$

$= 8000\text{ m} + 750\text{ m}$

$= \frac{8000}{1000}\text{ km} + 750\text{ m}$

$= 8\text{ km} + 750\text{ m}$

$= 8\text{ km } 750\text{ m}$

6. What is a better unit to measure the following ? Use km, m or cm. First one has been done for you :

(a) m, (b) m, (c) m, (d) km, (e) m, (f) km

Exercise - 7.2

1. Convert into grams :

(a) 7 dag $= 7 \times 10\text{ g}$ ($\because 1\text{ dag} = 10\text{ g}$)

$= 70\text{ g}$

(b) 12 hg $= 12 \times 100\text{ g}$ ($\because 1\text{ hg} = 100\text{ g}$)

$= 1200\text{ g}$

(c) 15 kg $= 15 \times 1000$ g ($\because$ 1 kg = 1000 g)

$= 15000$ g

(d) 8 dag 4 g $= 8$ dag $+ 4$ g

$= 8 \times 10$ g $+ 4$ g

$= 80$ g $+ 4$ g

$= 84$ g

(e) 2 hg 2 dag $= 2$ hg $+ 2$ dag

$= 2 \times 100$ g $+ 2 \times 10$ g

$= 200$ g $+ 20$ g

$= 220$ g

(f) 9 kg 7 hg $= 9$ kg $+ 7$ hg

$= 9 \times 1000$ g $+ 7 + 100$ g

$= 9000$ g $+ 700$ g

$= 9700$ g

(g) 7 hg 5 dag 8 g $= 7$ hg $+ 5$ dag $+ 8$ g

$= 7 \times 100$ g $+ 5 \times 10$ g $+ 8$ g

$= 700$ g $+ 50$ g $+ 8$ g

$= 758$ g

(h) 6 hg 8 dag 3 g $= 6$ hg 8 dag $+ 3$ g

$= 6 \times 100$ g $+ 8 \times 10$ g $+ 3$ g

$= 600$ g $+ 80$ g $+ 3$ g

$= 683$ g

(i) 6 kg 2 dag 4 g $= 6$ kg $+ 2$ dag $+ 4$ g

$= 6 \times 1000$ g $+ 2 \times 10$ g $+ 4$ g

$= 6000$ g $+ 20$ g $+ 4$ g

$= 6024$ g

(j) 5 kg 6 hg 2 dag $= 5$ kg $+ 6$ hg $+ 2$ dag

$= 5 \times 1000$ g $+ 6 \times 100$ g $+ 20$ g

$= 5000$ g $+ 6000$ g $+ 20$ g

$= 5620$ g

(k) 4 kg 9 hg 2 dag 2 g $= 4\text{ kg} + 9\text{ hg} + 2\text{ dag} + 2\text{ g}$

$= 4 \times 1000\text{ g} + 9 \times 100\text{ g} + 2 \times 10\text{ g} + 2\text{ g}$

$= 4000\text{ g} + 900\text{ g} + 20\text{ g} + 2\text{ g}$

$= 4922\text{ g}$

(l) 8 kg 2 hg 6 dag 9 g $= 8\text{ kg} + 2\text{ hg} + 6\text{ dag} + 9\text{ g}$

$= 8 \times 1000\text{ g} + 2 \times 100\text{ g} + 6 \times 10\text{ g} + 9\text{ g}$

$= 8000\text{ g} + 200\text{ g} + 60\text{ g} + 9\text{ g}$

(m) 9 kg 3 dag $= 9\text{ kg} + 3\text{ dag}$

$= 9 \times 1000\text{ g} + 3 \times 10\text{ g}$

$= 9000\text{ g} + 30\text{ g}$

$= 9030\text{ g}$

(n) 4 kg 5 hg 3 g $= 4\text{ kg} + 5\text{ hg} + 3\text{ g}$

$= 4 \times 1000\text{ g} + 5 \times 100\text{ g} + 3\text{ g}$

$= 4000\text{ g} + 500\text{ g} + 3\text{ g}$

$= 4503\text{ g}$

(o) 27 kg $= 27 \times 1000\text{ g}$

$= 27000\text{ g}$

2. Express as dag and g :

(a) 98 g $= (90 + 8)\text{ g}$

$= 90\text{ g} + 8\text{ g}$

$= 9\text{ dag} + 8\text{ g}$ $\left[1\text{ g} = \frac{1}{10}\text{ dag}\right]$

$= 9\text{ dag } 8\text{ g}$

(b) 815 g $= (810 + 5)\text{ g}$

$= 810\text{ g} + 5\text{ g}$

$= 81\text{ dag} + 5\text{ g}$

$= 81\text{ dag } 5\text{ g}$

(c) 1687 g $= (1680 + 7)\text{ g}$

$= 1680\text{ g} + 7\text{ g}$

$= 168\text{ dag} + 7\text{ g}$

$= 168\text{ dag } 7\text{ g}$

(d) 9 kg $= 9 \times 1000$ g

$= 9000$ g

$= (8990 + 10)$ g

$= 8990$ g $+ 10$ g

$= 899$ dag $+ 10$ g

$= 899$ dag 10 g

3. Express as hg, dag and g :

(a) 425 g $= (400 + 20 + 5)$ g

$= 400$ g $+ 20$ g $+ 5$ g

$= \frac{400}{100}$ hg $+ \frac{20}{10}$ dag $+ 5$ g

$= 4$ hg $+ 2$ dag $+ 5$ g

$= 4$ hg 2 dag 5 g

(b) 654 g $= (600 + 40 + 5)$ g

$= 600$ g $+ 40$ g $+ 5$ g

$= \frac{600}{100}$ hg $+ \frac{40}{10}$ dag $+ 5$ g

$= 6$ hg $+ 4$ dag $+ 5$ g

$= 6$ hg 4 dag 5 dag

(c) 2125 g $= (2100 + 20 + 5)$ g

$= 2100$ g $+ 20$ g $+ 5$ g

$= \frac{2100}{100}$ hg $+ \frac{20}{10}$ dag $+ 5$g

$= 21$ hg $+ 2$ dag $+ 5$ g

$= 21$ hg 2 dag 5 g

(d) 7 kg $= 7 \times 1000$ g

$= 7000$ g

$= (6900 + 90 + 10)$ g

$= 6900$ g $+ 90$ g $+ 10$ g

$= \frac{6900}{100}$ hg $+ \frac{90}{10}$ dag $+ 10$g

$= 69\text{ hg} + 9\text{ dag} + 10\text{ g}$

$= 69\text{ hg } 9\text{ dag } 10\text{ g}$

4. Express as kg, hg, dag and g :

(a) 9225 g $= (9000 + 200 + 20 + 5)\text{ g}$

$= 9000\text{ g} + 200\text{ g} + 20\text{ g} + 5\text{ g}$

$= \frac{9000}{1000}\text{kg} + \frac{200}{100}\text{hg} + \frac{20}{10}\text{dg} + 5\text{g}$

$= 9\text{ kg} + 2\text{ hg} + 2\text{ dg} + 5\text{ g}$

$= 9\text{ kg } 2\text{ hg } 2\text{ dg } 5\text{ g}$

(b) 6722 g $= (6000 + 700 + 20 + 2)\text{ g}$

$= 6000\text{ g} + 700\text{ g} + 20\text{ g} + 2\text{ g}$

$= \frac{6000}{1000}\text{kg} + \frac{700}{100}\text{hg} + \frac{20}{10}\text{dg} + 2\text{g}$

$= 6\text{ kg} + 7\text{ hg} + 2\text{ dg} + 2\text{g}$

$= 6\text{ kg } 7\text{ hg } 2\text{ dg } 2\text{g}$

(c) 3095 g $= (3000 + 90 + 5)\text{ g}$

$= 3000\text{ g} + 90\text{ g} + 5\text{ g}$

$= \frac{3000}{1000}\text{kg} + \frac{90}{10}\text{dg} + 5\text{g}$

$= 3\text{ kg} + 9\text{ dg} + 5\text{ g}$

$= 3\text{ kg } 9\text{ dg } 5\text{ g}$

(d) 8423 g $= (8000 + 400 + 20 + 3)\text{ g}$

$= 8000\text{ g} + 400\text{ g} + 20\text{ g} + 3\text{ g}$

$= \frac{8000}{1000}\text{kg} + \frac{400}{100}\text{hg} + \frac{20}{10}\text{dg} + 3\text{g}$

$= 8\text{ kg} + 4\text{ hg} + 2\text{ dg} + 3\text{ g}$

$= 8\text{ kg } 4\text{ hg } 2\text{ dg } 3\text{ g}$

5. Express as kg and g :

(a) 3945 g $= (3000 + 945)$ g

$= 3000$ g $+ 945$ g

$= \frac{6000}{1000}$ kg $+ 945$ g

$= 3$ kg $+ 945$ g

$= 3$ kg 945 g

(a) 3945 g $= (3000 + 945)$ g

$= 3000$ g $+ 945$ g

$= \frac{9000}{1000}$ kg $+ 945$ g

$= 3$ kg $+ 945$ g

$= 3$ kg 945 g

(a) 3945 g $= (3000 + 945)$ g

$= 3000$ g $+ 945$ g

$= \frac{7000}{1000}$ kg $+ 945$ g

$= 3$ kg $+ 945$ g

$= 3$ kg 945 g

(a) 3945 g $= (3000 + 945)$ g

$= 3000$ g $+ 945$ g

$= \frac{3000}{1000}$ kg $+ 945$ g

$= 3$ kg $+ 945$ g

$= 3$ kg 945 g

2. Express as cl and ml :

(a) 89 ml $= (80 + 9)$ ml

$= 80$ ml $+ 9$ ml

$= \frac{80}{10}$ cl $+ 9$ ml

$= 8$ cl $+ 9$ ml

$= 8$ cl 9 ml

(b) 281 ml $= (280 + 1)$ ml

$= 280$ ml $+ 1$ ml

$=$ $+ 1$ ml

$= 28$ cl $+ 1$ ml

$= 28$ cl 1 ml

(c) 669 ml $= (660 + 9)$ ml

$= 660$ ml $+ 9$ ml

$=$ $+ 9$ ml

$= 66$ cl $+ 9$ ml

$= 66$ cl 9 ml

(d) 995 ml $= (990 + 5)$ ml

$= 990$ ml $+ 5$ ml

$=$ $+ 5$ ml

$= 99$ cl $+ 5$ ml

$= 99$ cl 5 ml

3. Express as dl, cl and ml :

(a) 684 ml $= (600 + 80 + 4)$ ml

$= 600$ ml $+ 80$ ml $+ 4$ ml

$= \frac{600}{100}$ dl $+ \frac{80}{10}$ cl $+ 4$ ml

$= 6$ dl $+ 8$ cl $+ 4$ ml

$= 6$ dl 8 cl 4 ml

Exercise - 7.3

1. Convert into millilitres :

(a) We know that,

$1 l = 1000$ ml

$\therefore$ $8 l = 8 \times 1000$ ml

$= 8000$ ml

(b) $16 l = 16 \times 1000$ ml

$= 16000$ ml

(c) $21 l = 21 \times 1000$ ml

$= 21000$ ml

(d) 9 dl $= 9 \times 100$ ml [$\because 1$ dl $= 100$ ml]

$= 900$ ml

(e) 18 dl $= 18 \times 100$ ml [$\because 1$ dl $= 100$ ml]

$= 1800$ ml

(f) 43 dl $= 43 \times 100$ ml

$= 4300$ ml

(g) 17 cl $= 17 \times 10$ ml [$\because 1$ cl $= 10$ ml]

$= 170$ ml

(h) 32 cl $= 32 \times 10$ ml

$= 320$ ml

(i) 49 cl $= 49 \times 10$ ml

$= 490$ ml

(j) 57 cl $= 57 \times 10$ ml

$= 570$ ml

(k) 9 cl 7 ml $= 7$ cl $+ 7$ ml

$= 7 \times 10$ ml $+ 7$ ml

$= 70$ ml $+ 7$ m

$= 77$ ml

(l) 2 cl 2 ml $= 2$ cl $+ 2$ ml

$= 2 \times 10$ ml $+ 2$ ml

$= 20$ ml $+ 2$ ml

$= 22$ ml

(m) 5 cl 7 ml $= 5\text{ cl} + 7\text{ ml}$
$= 5 \times 10\text{ ml} + 7\text{ ml}$
$= 50\text{ ml} + 7\text{ ml}$
$= 57\text{ ml}$

(n) 8 cl 4 ml $= 8\text{ cl} + 4\text{ ml}$
$= 8 \times 10\text{ ml} + 4\text{ ml}$
$= 80\text{ ml} + 4\text{ ml}$
$= 84\text{ ml}$

(o) 4 dl 6 cl 8 ml $= 4\text{ dl} + 6\text{ cl} + 8\text{ ml}$
$= 4 \times 100\text{ ml} + 6 \times 10\text{ ml} + 8\text{ ml}$
$= 400\text{ ml} + 60\text{ ml} + 8\text{ ml}$
$= 468\text{ ml}$

(p) 8 dl 8 cl 7 ml $= 8\text{ dl} + 8\text{ cl} + 7\text{ ml}$
$= 8 \times 100\text{ ml} + 8 \times 10\text{ ml} + 7\text{ ml}$
$= 800\text{ ml} + 80\text{ ml} + 7\text{ ml}$
$= 887\text{ ml}$

(q) 3 dl 3 cl 4 ml $= 3\text{ dl} + 3\text{ cl} + 4\text{ ml}$
$= 3 \times 100\text{ ml} + 3 \times 10\text{ ml} + 4\text{ ml}$
$= 300\text{ ml} + 30\text{ ml} + 4\text{ ml}$
$= 334\text{ ml}$

(r) 6 l 9 dl 2 cl $= 6\text{ l} + 9\text{ dl} + 2\text{ cl}$
$= 6 \times 1000\text{ ml} + 9 \times 100\text{ ml} + 2 \times 10\text{ ml}$
$= 6000\text{ ml} + 900\text{ ml} + 20\text{ ml}$
$= 6920\text{ ml}$

(s) 8 l 2 dl 5 cl $= 8\text{ l} + 2\text{ dl} + 5\text{ cl}$
$= 8 \times 1000\text{ ml} + 2 \times 100\text{ ml} + 5 \times 10\text{ ml}$
$= 8000\text{ ml} + 200\text{ ml} + 50\text{ ml}$
$= 8250\text{ ml}$

(t) 9 l 4 dl 3 cl 9 ml $= 9\text{ l} + 4\text{ dl} + 3\text{ cl} + 9\text{ ml}$
$= 9 \times 1000\text{ ml} + 4 \times 100\text{ ml} + 3 \times 10\text{ ml} + 9\text{ ml}$
$= 9000\text{ ml} + 400\text{ ml} + 30\text{ ml} + 9\text{ ml}$
$= 9439\text{ ml}$

(b) 907 ml $= (900 + 7)$ ml

$= 900$ ml $+ 7$ ml

$= \frac{900}{100}$ dl $+ 7$ ml

$= 9$ dl $+ 7$ ml

$= 9$ dl 7 ml

(c) 4922 ml $= (4900 + 20 + 2)$ ml

$= 4900$ ml $+ 20$ ml $+ 2$ ml

$= \frac{4900}{100}$ dl $= \frac{20}{10}$ cl $+ 2$ ml

$= 49$ dl $+ 2$ cl $+ 2$ ml

$= 49$ dl 2 cl 2 ml

(d) 8464 ml $= (8400 + 60 + 4)$ ml

$= 8400$ ml $+ 60$ ml $+ 4$ ml

$= \frac{8400}{100}$ dl $+ \frac{60}{10}$ cl $+ 4$ ml

$= 84$ dl $+ 60$ cl $+ 4$ ml

$= 84$ dl 60 cl 4 ml

4. Express as l, dl, cl and ml :

(a) 2283 ml $= (2000 + 200 + 80 + 3)$ ml

$= 2000$ ml $+ 200$ ml $+ 80$ ml $+ 3$ ml

$= \frac{2000}{1000}$ l $+ \frac{200}{100}$ dl $+ \frac{80}{10}$ cl $+ 3$ ml

$= 2$ l $+ 2$ dl $+ 8$ cl $+ 3$ ml

$= 2$ l 2 dl 8 cl 3 ml

(b) 6315 ml $= (6000 + 300 + 10 + 5)$ ml

$= \frac{6000}{1000}$ l $+ \frac{300}{100}$ dl $+ \frac{10}{10}$ cl $+ 5$ ml

$= 6$ l $+ 3$ dl $+ 1$ cl $+ 5$ ml

$= 6$ l 3 dl 1 cl 5 ml

(c) 9870 ml $= (9000 + 800 + 70)$ ml

$= \frac{9000}{1000} l + \frac{800}{100} dl + \frac{70}{10} cl$

$= 9 l + 8 dl + 7 cl$

$= 9 l\ 8 dl\ 7 cl$

(d) 8097 ml $= (8000 + 90 + 7)$ ml

$= \frac{8000}{1000} l + \frac{90}{10} cl + 7 ml$

$= 8 l + 9 cl + 7 ml$ $= 8 l 9 cl 7 ml$

5. Express as dl and cl :

(a) $25 cl = (20 + 5) cl$ $= 20 cl + 5 cl$

$= 20 \times 10 ml + 5 cl$ $= 200 ml + 5 cl$

$= 2 dl + 5 cl$ $= 2 dl 5 cl$

(b) $139 cl = (130 + 9) cl$ $= 130 cl + 9 cl$

$= \frac{130}{10} dl + 9 cl$ $(1 cl = \frac{1}{10} dl]$

$= 13 dl + 9 cl$ $= 13 dl 9 cl$

(c) $433 cl = (430 + 3) cl$ $= 430 cl + 3 cl$

$= \frac{430}{10} dl + 3 cl$ $= 43 dl + 3 cl$

$= 43 dl\ 3 cl$

(d) $913 cl = (910 + 3) cl$ $= 910 cl + 3 cl$

$= \frac{910}{10} dl + 3 cl$ $= 91 dl + 3 cl$

$= 91 dl 3 cl$

6. Express as l and dl :

(a) $95 dl = 95 \times 100 ml$ $= 9500 ml$

$= (9000 + 500) ml$ $= \frac{9000}{1000} l + \frac{500}{100} dl$

$= 9 l + 5 dl$ $= 9 l\ 5 dl$

(b) $189 dl = 189 \times 100 ml$

$= 18900 ml$ $= (18000 + 900) ml$

$= \frac{18000}{1000} l + \frac{900}{100} dl$ $= 18 l + 9 dl$

$= 18 l \ 9 dl$

(c) 341 dl $= 341 \times 100$ ml $= 34100$ ml

$= (34000 + 100)$ ml $= \frac{34000}{1000} l + \frac{100}{100} dl$

$= 34 l + 1 dl$ $= 34 l \ 1 dl$

(d) 678 dl $= 678 \times 100$ ml $= 67800$ ml

$= (67000 + 800)$ ml $= \frac{67000}{1000} l + \frac{800}{100} dl$

$= 67 l + 8 dl$ $= 67 l \ 8 dl$

7. Express as l and ml :

(a) 4292 ml $= (4000 + 292)$ ml $= 4000$ ml $+ 292$ ml

$= \quad + 292$ ml $= 4 l + 292$ ml

$= 4 l \ 292$ ml

(b) 9122 ml $= (9000 + 122)$ ml $= 9000$ ml $+ 122$ ml

$= \frac{9000}{1000} l + 122$ ml $= 9 l + 122$ ml

$= 9 l \quad 122$ ml

(c) 8015 ml $= (8000 + 15)$ ml $= 8000$ ml $+ 15$ ml

$= \frac{8000}{1000} l + 15$ ml $= 8 l + 15$ ml

$= 8 l + 15$ ml

(d) 9875 ml $= (9000 + 875)$ ml $= 9000$ ml $+ 875$ ml

$= \frac{9000}{1000} l + 875$ ml $= 9 l + 875$ ml

$= 9 l \quad 875$ ml

Chapter 7 : Geometry

Exercise - 7.1

1. Find the perimeter of each of the following figures :

(a) Perimeter $= 5$ cm $+ 6$ cm $+ 8$ cm $+ 6$ cm

$= 25$ cm

(b) Perimeter $= 6\text{ cm} + 6\text{ cm} + 6\text{ cm} + 6\text{ cm}$
$= 24\text{ cm}$

(c) Perimeter $= 10\text{ cm} + 4\text{ cm} + 10\text{ cm} + 4\text{ cm}$
$= 28\text{cm}$

(d) Perimeter $= 5\text{ cm} + 3\text{ cm} + 6\text{ cm}$
$= 14\text{ cm}$

(e) Perimeter $= 15\text{ cm} + 12\text{ cm} + 40\text{ cm} + 30\text{ cm}$
$= 97\text{ cm}$

2. Find the perimeter of each of the following figures. Express the perimeter so obtained in metres and centimetres.

(a) Perimeter $= 60\text{ cm} + 15\text{ cm} + 60\text{ cm} + 15\text{ cm}$
$= 150\text{ cm}$
$= (100 + 50)\text{ cm}$
$= 100\text{ cm} + 50\text{ cm}$
$= 1\text{ m} + 50\text{ cm} = 1\text{ m } 50\text{ cm}$

(b) Perimeter $= 60\text{ cm} + 60\text{ cm} + 60\text{ cm} + 60\text{ cm}$
$= 240\text{ cm}$
$= (200 + 40)\text{ cm}$
$= \frac{200}{100}\text{ m} + 40\text{ cm}$
$= 2\text{ m} + 40\text{ cm}$
$= 2\text{ m } 40\text{ cm}$

(c) Perimeter $= 40\text{ cm} + 60\text{ cm} + 50\text{ cm}$
$= 150\text{ cm}$
$= (100 + 50)\text{ cm}$
$= 100\text{ cm} + 50\text{ cm}$
$= 1\text{ m} + 50\text{ cm} = 1\text{ m } 50\text{ cm}$

3. Find the perimeter of each of the following figures. Express the perimeter so obtained in kilometers and metres :

(a) Perimeter $= 300\text{ m} + 300\text{ m} + 300\text{ m} + 300\text{ m} + 300\text{ m} + 300\text{ m}$
$= 1800\text{ m}$
$= (1000 + 800)\text{ m}$
$= \frac{1000}{1000}\text{ km} + 800\text{ m}$

$= 1\text{ km } 800\text{ m}$

(b) Perimeter $= 500\text{ m} + 500\text{ m} + 500\text{ m} + 500\text{ m}$

$= 2000\text{ m}$

$= \frac{2000}{1000}\text{ km}$

$= 2\text{ km}$

(c) Perimeter $= 250\text{ m} + 250\text{ m} + 250\text{ m} + 250\text{ m} + 250\text{ m}$

$= 1250\text{ m}$

$= (1000 + 250)\text{ m}$

$= \frac{1000}{1000}\text{ km} + 250\text{ m}$

$= 1\text{ km} + 250\text{ m}$

$= 1\text{ km } 250\text{ m}$

4. Do it yourself.

5. Find the missing length in each figure :

(a) Let the missing length be x cm. Then,

Perimeter $= x + 150\text{ cm} + 250\text{ cm} + 15\text{ cm}$

$65\text{ cm} = x + 55\text{ cm}$

or $x + 55\text{ cm} = 65\text{ cm}$

or $x = 65\text{ cm} - 55\text{ cm}$ $x = 10\text{ cm}$

Hence, the missing length is 10 cm.

(b) Let the missing length be x cm. Then,

Perimeter $= x + 8\text{ cm} + 12\text{ cm}$

$36\text{ cm} = x + 20\text{ cm}$

or $36\text{ cm} - 20\text{ cm} = x$ or $16\text{ cm} = x$

or $x = 16\text{ cm}$

Hence, the missing length is 16 cm.

(c) Let the missing length be x cm. Then,

Perimeter $= x + 40\text{ cm} + 20\text{ cm} + 40\text{ cm}$

$120\text{ cm} = x + 100\text{ cm}$

or $120\text{ cm} - 100\text{ cm} = x$

or $20\text{ cm} = x$ $x = 20\text{ cm}$

Hence, the missing length is 20 cm.

(d) Let the missing length be x cm. Then,

Perimeter $= x + 8\text{ cm} + 15\text{ cm} + 7\text{ cm}$

$50\text{ cm} = x + 30\text{ cm}$

or $50\text{ cm} - 30\text{ cm} = x$ or $x = 20\text{ cm}$

Hence, the missing length is 20 cm.

Chapter 8 Factor and Multiples

Exercise - 8.1

(a) Let us divide 108 by 9.

Since, 108 is exactly divisible by 9, so it is a factor of 108.

```
    12
9 )108
    9
    18
    18
     0
```

(b) Let us divide 94 by 15.

Since, 94 is not exactly divisible by 15, so it is not a factor of 220.

```
     6
15 )94
    90
     4
```

(c) Let us divide 162 by 18.

Since, 162 is exactly divisible by 18, so it is a factor of 162.

```
     9
18 )162
  – 162
     0
```

(d) Let us divide 220 by 25.

Since, 220 is not exactly divisible by 25, so it is not a factor of 220.

```
     8
25 )220
  – 200
    20
```

2. Fill in the blanks :

(a) 40, (b) 63, (c) 12, 6 and 72, (d) 14, 7 and 98

3. $1 \times 20 = 120$, $2 \times 60 = 120$, $3 \times 40 = 120$, $5 \times 24 = 120$ and $6 \times 20 = 120$

Hence, all the factors of 120 are 1, 2, 3, 4, 5, 6, 20, 24, 30, 40, 60 and 120

4. $1 \times 180 = 180$, $2 \times 90 = 180$, $3 \times 60 = 180$, $4 \times 45 = 180$ $5 \times 36 = 180$, $6 \times 30 = 180$

Hence, all the factors of 180 are 1, 2, 3, 4, 5, 6, 30, 36, 45, 60, 90 and 180.

5. $1 \times 98 = 98$, $2 \times 49 = 98$, $7 \times 14 = 98$

Hence, all factof of 98 are 1, 2, 7, 14, 49 and 98.

Now, smallest factor = 1 and greates factor = 98

6. $1 \times 144 = 144$, $2 \times 72 = 144$, $3 \times 48 = 144$, $4 \times 36 = 144$, $6 \times 24 = 144$, $8 \times 18 = 144$, $9 \times 16 = 144$

Hence, all the factors of 144 are 1, 2, 3, 4, 6, 8, 9, 16, 18, 24, 36, 48, 72 and 144.

Now, smallest factor = 1 and greatest = 144

```
      15
7 ) 105
    - 7
      35
    - 35
       0
```

7. Is the first number a factor of the second number in each of the following pairs.

(a) Let us divide 105 by 7.

Since, 105 exactly divisible by 7, so it is a factor of 105.

(b) Let us divide 232 by 11.

```
      21
11 ) 232
   - 22
     12
   - 11
      1
```

Since, 232 is not exactly divisible by 11, so it is not a factor of 232.

(c) Let us divide 120 by 24

```
       5
24 ) 120
   - 120
       0
```

Since, 120 is exactly divisible by 24, so it is a factor of 120.

(d) Let us divide 96 by 8.

```
      12
8 ) 96
  - 8
    16
  - 16
     0
```

Since, 96 is exactly divisible by 96, so it is a factor of 96.

8. Write 'T' for the true and 'F' for the false statements in the following boxes :

(a)F, (b) F, (c) T, (d) F, (e) T

Exercise = 8.2

1. Write the first four multiples of :

(a) The first four multiples of 9 are :
$9 \times 1 = 9, 9 \times 2 = 18, 9 \times 3 = 27$ and $9 \times 4 = 36$

(b) The first four multiples of 12 are :
$12 \times 1 = 12, 12 \times 2 = 24, 12 \times 3 = 36$ and $12 \times 4 = 48$

(c) The first four multiples of 14 are :
$14 \times 1 = 14, 14 \times 2 = 28, 14 \times 3 = 42$ and $14 \times 4 = 56$

(d) The first four multiples of 18 are :
$18 \times 1 = 18, 18 \times 2 = 36, 18 \times 3 = 54$ and $18 \times 4 = 72$

(e) The first four multiples of 22 are :
$22 \times 1 = 22, 22 \times 2 = 44, 22 \times 3 = 66$ and $22 \times 4 = 88$

(f) The first four multiples of 40 are :
$40 \times 1 = 40, 40 \times 2 = 80, 40 \times 3 = 120$ and $40 \times 4 = 160$

(g) The first four multiples of 50 are :
$50 \times 1 = 50, 50 \times 2 = 100, 50 \times 3 = 150$ and $50 \times 4 = 200$

(h) The first four multiples of 60 are :
$60 \times 1 = 60, 60 \times 2 = 60, 60 \times 3 = 180$ and $60 \times 4 = 240$

2. Write the next four multiples :

(a) 8, 16, 24, 32, **40, 48, 56, 64.**

(b) 15, 30, 45, 60, **75, 90, 105, 120.**

(c) 18, 36, 54, 72, **90, 108, 126, 144.**

(d) 20, 40, 60, 80, **100, 120, 140, 160.**

(e) 24, 48, 72, 96, **120, 144, 168, 192.**

3. The multiples of 25 which are greater than 125 and less than 225.

$25 \times 6 = 150, \quad 25 \times 8 = 200$

Hence, 150 and 200 are required multiples.

4. 8th multiple of $16 = 16 \times 8 = 128$.

5. 5th multiple of $40 = 40 \times 5 = 200$.

6. The multiple of 111 which is greater than 3-digit number $= 111 \times 10 = 1110$.

7. Check if :

(a) We divide 225 by 15.

```
      15
15 ) 225
   – 15
     75
   – 75
      0
```

Since, there is no remainder (i.e., 0 remainder). Thus, 225 is a multiple of 15.

(b) We divide 555 by 8.

```
      69
 8 ) 555
   – 48
     75
   – 72
      3
```

Remainder 3 shows that 8 does, not divide 555 exactly.

$\therefore$ 555 is note multiple of 8.

(c) We divide 325 by 25.

```
      13
25 ) 325
   – 25
     75
   – 75
      0
```

Since, there is no remainder (i.e., 0 remainder). Thus, 325 is a multiple of 25.

(b) We divide 900 by 9.

```
      100
 9 ) 900
   – 9
     0
   – 0
     0
   – 0
     0
```

Since, there is no remainder (i.e., 0 remainder). Thus 900 is a multiple of 9.

8. (a) We divide 120 by 8.

```
      15
8 ) 120
    - 8
     40
   - 40
      0
```

Since, there is no remainder (i.e., 0 remainder). Thus, 120 is a multiple of 8.

(b) We divide 37 by 5.

```
      7
5 ) 37
   - 35
      2
```

Remainder 2 show that 5 does not divide 37 exactly.

$\therefore$ 37 is not a multiple of 5.

Exercise - 8.3

1. Which of the following are odd numbers ?

The odd numbers are :

21, 35, 49, 85, 197 and 13553

2. Which of the following are even numbers ?

The even numbers are :

88, 384, 992, 2454, 3582 and 87894

3. All the odd numbers between 300 and 350 are :

301, 303, 305, 307, 309, 311, 313, 315, 317, 319, 321, 323, 325, 327, 329, 331, 333, 335, 337, 339, 341, 343, 245, 347 and 349.

4. All the even numbers between 250 and 300 are :

252, 254, 256, 258, 260, 262, 264, 268, 370, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296 and 298

5. All the odd numbers less than 35 are :

1, 3, 5, 7, 9, 11, 13, 17, 19, 21, 23, 25, 27, 29, 31 and 33.

6. **Fill in the blanks :**

(a) 1001, (b) 998, (c) 10001, (d) 10000

7. The greatest 4-digit odd number $= 9999$

The smallest 4-digit odd number $= 1001$

$\therefore$ Difference $= 9999 - 1001$

$= 8998$

hence, the required difference is 8998.

8. **Without adding, tell whether the sum will be odd or even :**

(a) $55 + 13 = 68$, even number.

(b) $48 + 19 = 67$, odd number.

(c) $122 + 124 = 246$, even number.

(d) $218 + 197 = 415$, odd number.

Chapter 9 : Common Fractions

Exercise - 9.1

1. **Which of the following are groups of like fractions ?**

(a) Since, $\frac{1}{7}, \frac{2}{7}, \frac{3}{7}, \frac{5}{7}$ and $\frac{6}{7}$ have the same Denominator, so these fractions are like fractions.

(b) Since, $\frac{1}{11}, \frac{7}{11}, \frac{4}{7}, \frac{8}{13}$ and $\frac{13}{6}$ have not same denominator, so these fractions are not like fractions.

(c) Since, $\frac{2}{8}, \frac{5}{15}, \frac{13}{9}, \frac{6}{7}$ and $\frac{4}{15}$ have not same denominator, so these fractions are not like fractions.

(d) Since, $\frac{4}{13}, \frac{2}{13}, \frac{7}{13}, \frac{5}{13}$ and $\frac{8}{13}$ have same denominator, so these fractions are like fractions.

(e) Since, $\frac{3}{8}, \frac{5}{8}, \frac{1}{8}, \frac{7}{8}$ and $\frac{9}{8}$ have same denominator, so these fractions are like fractions.

(f) Since, $\frac{4}{9}, \frac{3}{10}, \frac{5}{8}, \frac{3}{5}$ and $\frac{7}{10}$ have not same denominator, so these fractions are not like fractions.

2. Which of the following fractions are proper fractions ?

(a) Since, denominator 8 of the given fraction is greater than numerator 5.

Hence, $\frac{5}{8}$ is proper fraction.

(b) Since, denominator 17 of the given fraction is greater than numerator 12.

Hence, $\frac{12}{17}$ is proper fraction.

(c) Since, denominator 8 of the given fraction is less than numerator 13.

Hence, $\frac{13}{8}$ is not proper fraction.

(d) Since, denominator 27 of the given fraction is greater than numerator 23.

Hence, $\frac{23}{27}$ is proper fraction.

(e) Since, denominator 42 of the given fraction is greater than numerator 42.

Hence, $\frac{42}{38}$ is proper fraction.

3. Which of the following fractions are improper fractions ?

(a) Since, numerator 9 of the given fraction is less than denominator 10.

Thus, $\frac{9}{10}$ is not improper fraction.

(b) Since, numerator 22 of the given fraction is greater than denominator 14.

Thus, $\frac{22}{14}$ is not improper fraction.

(c) Since, numerator 2 of the given fraction is less than denominator 13.

Thus, $\frac{2}{3}$ is not improper fraction.

(d) Since, numerator 16 of the given fraction is less than denominator 20.

Thus, $\frac{16}{20}$ is not improper fraction.

(e) Since, numerator 43 of the given fraction is less than denominator 38.

Thus, $\frac{43}{48}$ is not improper fraction.

4. Which of the following are unit fractions ?

(a) Since, $\frac{6}{9}$ have not 1 numerator.

$\therefore \frac{6}{9}$ is not unit fraction.

(b) Since, $\frac{2}{5}$ have not 1 numerator.

$\therefore \frac{2}{5}$ is not unit fraction.

(c) Since, $\frac{1}{6}$ have 1 numerator.

$\therefore \frac{1}{6}$ is unit fraction.

(d) Since, $\frac{11}{15}$ have 11 numerator.

$\therefore \frac{11}{15}$ is not unit a fraction.

(e) Since, $\frac{1}{8}$ have not 1 numerator.

$\therefore \frac{1}{8}$ is a unit fraction.

5. Check whether the given fractions are equivalent :

(a) By cross multiplication, we have ;

$2 \times 20 = 40$ and $8 \times 5 = 40$

Since, the two products are the same, so the given fractions are equivalent.

(b) By cross multiplication, we have ;

$5 \times 42 = 210$ and $9 \times 36 = 324$

Since, the two products are the same, so the given fractions are equivalent.

(c) By cross multiplication, we have ;

$3 \times 21 = 63$ and $9 \times 7 = 63$

Since, the two products are the same, so the given fractions are equivalent.

(d) By cross multiplication, we have ;

$4 \times 55 = 220$ and $11 \times 24 = 264$

Since, the two products are the same, so the given fractions are not equivalent.

(e) By cross multiplication, we have ;

$6 \times 65 = 390$ and $13 \times 30 = 390$

Since, the two products are the same, so the given fractions are equivalent.

(f) By cross multiplication, we have ;

$8 \times 32 = 256$ and $15 \times 60 = 900$

Since, the two products are the same, so the given fractions are not equivalent.

6. Replace ◯ in each of the following by the correct number :

(a) $\frac{5}{6} = \frac{10}{12}$ (b) $\frac{4}{13} = \frac{12}{39}$ (c) $\frac{8}{11} = \frac{32}{44}$

(d) $\frac{9}{15} = \frac{36}{60}$ (e) $\frac{1}{5} = \frac{3}{15}$ (f) $\frac{3}{8} = \frac{24}{64}$

7. Find the equivalent fraction of :

(a) Since, 12 = 4 × 3, so we multiply both the numerator and denominator of $\frac{4}{7}$ by 3.

$$\frac{4}{7} = \frac{4\times3}{7\times3} = \frac{12}{21}$$

Hence, $\frac{12}{21}$ is the required fraction.

(b) Since, 32 = 8 × 4, so we multiply both the numerator and denominator of $\frac{3}{8}$ by 4.

$$\frac{3}{8} = \frac{3\times4}{8\times4} = \frac{12}{32}$$

Hence, $\frac{12}{32}$ is the required fraction.

(c) Since, 99 = 11 × 9, so we multiply both the numerator and denominator of $\frac{9}{11}$ by 9.

$$\frac{9}{11} = \frac{9\times9}{11\times9} = \frac{81}{99}$$

Hence, $\frac{81}{99}$ is the required fraction.

(d) Since, 8 ÷ 2 = 4, So we divide both the numerator and denominator of $\frac{8}{14}$ by 2.

$$\frac{8}{14} = \frac{8\div2}{14\div2} = \frac{4}{7}$$

Hence, $\frac{4}{7}$ is the required fraction.

(e) Since, 20 ÷ 10 = 2, so we multiply both the numerator and denominator of $\frac{20}{60}$ by 10.

$$\frac{20}{60} = \frac{20 \div 10}{60 \div 10} = \frac{2}{6}$$

Hence, $\frac{2}{6}$ is the required fraction.

(f) Since, 35 ÷ 5 = 7, so we multiply both the numerator and denominator of $\frac{20}{35}$ by 5.

$$\frac{20}{35} = \frac{20 \div 5}{35 \div 5} = \frac{4}{7}$$

Hence, $\frac{4}{7}$ is the required fraction.

Exercise - 11.2

1. Which of the following fractions are in its lowest term ?

(a) $\frac{8}{9}$ is the lowest term.

(b) $\frac{12}{14}$ is not the lowest term.

(c) $\frac{3}{7}$ is the lowest term.

(d) $\frac{25}{40}$ is not the lowest term.

2. Reduce each of the following fractions in its lowest term :

(a) Here, numerator 9 and denominator is 33.

Let us find the HCF of 9 and 33 by long division method.

```
9 ) 3 3 ( 3
   −2 7
      6 ) 9 ( 1
         −6
          3 ) 6 ( 2
             −6
              0
```

$\therefore$ HCF of 9 and 33 is 3.

Thus, $\frac{9}{33} = \frac{9 \div 3}{33 \div 3} = \frac{3}{11}$

Hence, lowest term of $\frac{9}{33}$ is $\frac{3}{11}$

(b) Here, numerator 12 and denominator is 28.

Let us find the HCF of 12 and 28 by long division method.

```
12 ) 28 ( 2
    -24
      4 ) 12 ( 3
         -12
           0
```

$\therefore$ HCF of 12 and 28 = 4

Thus, $\frac{12}{28} = \frac{12 \div 4}{28 \div 4} = \frac{3}{7}$

Hence, lowest term of $\frac{12}{28}$ is $\frac{3}{7}$.

(c) Here, numerator 32 and denominator is 40.

Let us find the HCF of 32 and 40 by long division method.

```
32 ) 40 ( 1
    -32
      8 ) 32 ( 4
         -32
           0
```

$\therefore$ HCF of 32 and 40 is 8.

Thus, $\frac{32}{40} = \frac{32 \div 8}{40 \div 8} = \frac{4}{5}$

Hence, the required lowest term is $\frac{4}{5}$.

(d) Here, numerator 56 and denominator is 70.

Let us find the HCF of 56 and 70 by long division method.

```
56 ) 70 ( 1
    −56
     14 ) 56 ( 4
         −56
           0
```

∴ HCF of 56 and 70 is 14.

Thus, $\frac{56}{70} = \frac{56 \div 14}{70 \div 14} = \frac{4}{5}$

Hence, the required lowest term is $\frac{4}{5}$.

(e) Here, numerator 108 and denominator is 220.
Let us find the HCF of 108 and 220 by long division method.

```
108 ) 220 ( 2
     −216
        4 ) 108 ( 27
           − 8
             28
           − 28
              0
```

∴ HCF of 108 and 220 is 4.

Thus, $\frac{108}{220} = \frac{108 \div 4}{220 \div 4} = \frac{27}{55}$

Hence, the required lowest term is $\frac{27}{55}$.

(f) Here, numerator 32 and denominator is 40.
Let us find the HCF of 32 and 40 by long division method.

```
116 ) 312 ( 2
    −232
      80 ) 116 ( 1
         − 80
           36 ) 80 ( 2
              − 72
                8 ) 36 ( 4
                  − 32
                    4 ) 8 ( 2
                      − 8
                        0
```

$\therefore$ HCF of 116 and 312 is 4.

Thus, $\frac{116}{312} = \frac{116 \div 4}{312 \div 4} = \frac{29}{78}$

Hence, the required lowest term is $\frac{29}{78}$.

(g) Here, numerator 75 and denominator is 80.

Let us find the HCF of 75 and 80 by long division method.

```
75 ) 80 ( 1
   −75
     5 ) 75 ( 15
       −5
        25
       −25
          0
```

$\therefore$ HCF of 75 and 80 is 5.

Thus, $\frac{75}{80} = \frac{75 \div 5}{80 \div 5} = \frac{15}{16}$

Hence, the required lowest term is $\frac{15}{16}$.

(h) Here, numerator 91 and denominator is 260.

Let us find the HCF of 91 and 260 by long division method.

```
91)260(2
   −182
    78)91(1
      −78
       13)78(6
          −78
            0
```

$\therefore$ HCF of 91 and 260 is 13.

Thus, $\dfrac{91}{260} = \dfrac{91 \div 13}{260 \div 13} = \dfrac{7}{20}$

Hence, the required lowest term is $\dfrac{7}{20}$.

(i) Here, numerator 75 and denominator is 120.

Let us find the HCF of 75 and 120 by long division method.

```
75)120(1
   −75
    45)75(1
      − 45
       30)45(1
          − 30
           15)30(2
              − 30
                0
```

$\therefore$ HCF of 75 and 120 is 15.

Thus, $\dfrac{75}{120} = \dfrac{75 \div 15}{120 \div 15} = \dfrac{5}{8}$

Hence, the required lowest term is $\dfrac{5}{8}$.

(j) Here, numerator 162 and denominator is 54.

Let us find the HCF of 54 and 162 by long division method.

$$
\begin{array}{r|l|l}
54 & 162 & 3 \\
 & -162 & \\
 & \overline{\;0\;} &
\end{array}
$$

$\therefore$ HCF of 54 and 162 is 54.

Thus, $\dfrac{162}{54} = \dfrac{162 \div 54}{54 \div 54} = \dfrac{3}{1}$

Hence, the required lowest term is $\dfrac{3}{1}$.

(k) Here, numerator 140 and denominator is 245.

Let us find the HCF of 140 and 245 by long division method.

$$
\begin{array}{r|l|l}
140 & 245 & 1 \\
 & -140 & \\
 & 105 & 140 \;\; 1 \\
 & & -105 \\
 & & 35 \;\; 105 \;\; 6 \\
 & & -105 \\
 & & \overline{\;0\;}
\end{array}
$$

$\therefore$ HCF of 140 and 245 is 35.

Thus, $\dfrac{140}{245} = \dfrac{140 \div 35}{245 \div 35} = \dfrac{4}{7}$

Hence, the required lowest term is $\dfrac{4}{7}$.

(l) Here, numerator 156 and denominator is 346.

Let us find the HCF of 156 and 346 by long division method.

$$
\begin{array}{l}
156\,\overline{)\,346\,}\,2 \\
\quad -312 \\
\quad\;\; 34\,\overline{)\,156\,}\,4 \\
\qquad\;\; -136 \\
\qquad\quad 20\,\overline{)\,34\,}\,1 \\
\qquad\qquad -20 \\
\qquad\qquad\;\; 14\,\overline{)\,20\,}\,1 \\
\qquad\qquad\qquad -14 \\
\qquad\qquad\qquad\;\; 6\,\overline{)\,14\,}\,2 \\
\qquad\qquad\qquad\quad -12 \\
\qquad\qquad\qquad\qquad 2\,\overline{)\,6\,}\,3 \\
\qquad\qquad\qquad\qquad\;\; -6 \\
\qquad\qquad\qquad\qquad\;\;\; 0
\end{array}
$$

$\therefore$ HCF of 156 and 346 is 2.

Thus, $\dfrac{156}{346} = \dfrac{156 \div 2}{346 \div 2} = \dfrac{78}{173}$

Hence, the required lowest term is $\dfrac{78}{173}$.

Exercise - 11.3

1. Find the value of the following :

(a) $\dfrac{1}{2}$ of $8 = \dfrac{1}{2} \times 8 = \dfrac{8}{2} = 4$

(b) $\dfrac{2}{3}$ of $24 = \dfrac{2}{3} \times 24 = \dfrac{2 \times 24}{3} = \dfrac{48}{3} = 16$

(c) $\dfrac{5}{6}$ of $48 = \dfrac{5}{6} \times 48 = \dfrac{5 \times 48}{6} = 5 \times 6 = 30$

(d) $\dfrac{4}{9}$ of $9 = \dfrac{4}{9} \times 9 = \dfrac{4 \times 9}{9} = 4 \times 1 = 4$

(f) $\dfrac{11}{8}$ of $16 = \dfrac{11}{8} \times 16 = \dfrac{11 \times 16}{8} = 11 \times 2 = 22$

(g) $\dfrac{16}{3}$ of $27 = \dfrac{16}{3} \times 27 = 16 \times 9 = 144$

(h) $\dfrac{2}{25}$ of $50 = \dfrac{2}{25} \times 50 = 2 \times 5 = 10$

(i) $\frac{5}{20}$ of $1000 = \frac{5}{20} \times 1000 = 5 \times 50 = 250$

2. Find

(a) $\frac{5}{5}$ of ₹35 $= \frac{5}{5} \times$ ₹35 $=$ ₹$\frac{5}{5} \times 35 =$ ₹$1 \times 35 =$ ₹35

(b) $\frac{9}{5}$ of 50 paise $= \frac{9}{5} \times 50$ paise $= 9 \times 10$ paise $= 90$ paise

(c) $\frac{7}{12}$ of $4201 = \frac{7}{12} \times 4201 = 7 \times 351 = 2451$

(d) $\frac{3}{8}$ of 40 m $= \frac{3}{8} \times 40$ m $= 3 \times 5$ m $= 15$ m

(e) $\frac{3}{7}$ of 63 km $= \frac{3}{7} \times 63$ km $= 3 \times 9$ km $= 27$ km

(f) $\frac{6}{13}$ of 26 kg $= \frac{6}{13} \times 25$ kg $= 6 \times 2$ kg $= 12$ kg

(g) $\frac{2}{5}$ of 3 kg $= \frac{2}{5} \times 3$ kg $= \frac{2}{5} \times 3000$ gm $= 2 \times 600$ gm $= 1200$ gm

(h) $\frac{3}{4}$ of 9 day $= \frac{3}{4} \times 24$ hours $= 3 \times 6$ hours $= 18$ hours

(i) $\frac{9}{4}$ of an hour $= \frac{9}{4} \times 60$ minutes $= 9 \times 15$ minutes $= 135$ minutes

3. Fill in the blanks with fractions in lowest terms :

(a) 4 hours is $\mathbf{\frac{1}{6}}$ of a day

(b) 200 g is $\mathbf{\frac{1}{5}}$ of 1 kg.

(c) 5 years is $\mathbf{\frac{1}{2}}$ of a decade.

(d) 50 paise is $\mathbf{\frac{1}{2}}$ of rupee one.

(e) 40 cm is $\mathbf{\frac{2}{5}}$ of a metre.

(f) 9 months is $\mathbf{\frac{3}{4}}$ of one year.

(g) 15 seconds is $\frac{1}{4}$ of a minute.

4. $\frac{4}{7}$ indicates that 56 is to be divided into 7 equal groups and then 4 groups are taken.

So, first we divide 56 by 7.

$56 \div 7 = 8$

$\therefore$ One group has 8 students.

Now, to find the nuimber of students of 4 groups, we multiply 4 by 8.

$4 \times 8 = 32$

There fore, 32 students went to picnic.

5. $\frac{4}{5}$ indicates that 30 balloons is to be divided into 5 equal groups and then 4 groups are taken.

So, first we divide 30 by 5.

$30 \div 5 = 6$

$\therefore$ One group has 6 balloons.

Now, to find the umber of balloons of 4 groups, we multiply 4 by 6.

$4 \times 6 = 24$

Hence, Rinku can distribute 24 balloons.

6. $\frac{1}{11}$ indicates that 550 candles is to be divided into 11 equal groups and then one group are taken.

So, first we divide 550 by 11.

$550 \div 11 = 50$

$\therefore$ One group has 50 candles.

Now, to find the umber of candles of one groups, we multiply 1 by 50.

$1 \times 50 = 50$

Hence, shopkeeper sold 50 candles.

Chapter 10 : Decimal Number

Exercise - 10.1

1. Write the decimals shown in the table :

(a) 12.63 (b) 57.48 (c) 130.054 (c) 603.506

2. Write each of the following decimals in words :

(a) 2.7 = Two point seven

(b) 16.3 = Sixteen point three

(c) 29.46 = Twenty nine point four six

(d) 251.83 = Two hundred fifty one point eight three

(e) 0.69 = Zero point six nine

(f) 7.352 = Seven point three five two

(g) 73.104 = Seventy three point one zero four

(h) 0.835 = Zero point eight three five

3. Write each of the following as decimals :

(a) $14 + \frac{6}{10} + \frac{3}{100} = 14 + 0.6 + 0.03$

$= 14.63$

(b) $56 + \frac{8}{100} = 56 + 0.08$

$= 56.08$

(c) $73 + \frac{2}{10} + \frac{9}{100} + \frac{5}{1000} = 73 + 0.2 + 0.09 + 0.005$

$= 73.295$

(d) $62 + \frac{5}{10} + \frac{7}{1000} = 62 + 0.5 + 0.007$

$= 62.507$

(e) $\frac{8}{10} + \frac{3}{100} = 0.08 + 0.03$

$= 0.83$

(f) $777 + \frac{8}{10} + \frac{8}{1000} = 777 + 0.8 + 0.008$

$= 777.808$

4. Write each of the following as a decimal :

(a) Twenty point five one $= 20 + \frac{5}{10} + \frac{1}{100}$

$= 20 + 0.5 + 0.01$

$= 20.51$

(b) Thirty six and four tenths $= 36 + \frac{4}{10}$

$= 36 + 0.4$

$= 36.4$

(c) Nineteen and nineteen hundredth $= 19 + \frac{19}{100}$

$= 19 + 0.19$

$= 19.19$

(d) Three hundred nine and seven hundredths $= 309 + \frac{7}{100}$

$= 309 + 0.07$

$= 309.07$

(e) Seven thousandths $= \frac{7}{1000}$

$= 0.007$

(f) Ninety and one hundreths $= 90 + \frac{1}{100}$

$= 90 + 0.01$

$= 90.01$

(g) Two hundred and three thousandths $= 200 + \frac{3}{1000}$

$= 200 + 0.003$

$= 36.4$

(h) Thirty eight and four thousandths $= 38 + \frac{4}{1000}$

$= 28 + 0.004$

$= 38.004$

(i) Zero point seven four one $= 0 + \frac{7}{10} + \frac{4}{100} + \frac{1}{1000}$

$= 0 + 0.7 + 0.04 + 0.001$

$= 0.741$

(j) Two hundred fifty two point zero eight $= 252 + \frac{0}{10} + \frac{8}{100}$

$= 252 + 0 + 0.08$

$= 252.08$

Exercise - 10.2

1. Convert each of the following groups of unlike decimals into like decimals :

(a) 18.6 and 9.52 are unlike decimals.

The like decimals of given decimals are :

18.6 = 18.60 and 9.52 = 9.52

(b) The like decimals of given unlike decimals are :

24.2 = 24.20 and 0.64 = 0.64

(c) The like decimals of given unlike decimals are :

21.5 = 21.50, 122 = 122.00 and 83.42 = 83.42

(d) The like decimals of given unlike decimals are :

0.5 = 0.500, 0.894 and 9.12 = 9.120

2. Write the following in short form :

(a) $0.4 + 0.07 = 0.47$

(b) $26 + 0.5 + 0.09 + 0.008 = 26 + 0.598$

$= 26.598$

(c) $300 + 7 + \frac{2}{100} + \frac{8}{1000} = 307 + 0.2 + 0.008$

$$=307+0.208$$
$$=307.208$$

(d) $700+500+8+\frac{3}{10}+\frac{6}{100}+\frac{9}{1000}$

$$=758+0.3+0.06+0.009$$
$$=758+0.369$$
$$=758.369$$

3. Fill in the boxes with correct numerals :

(a) $4.72 = 4 + \frac{7}{\boxed{10}} + \frac{2}{100}$

(b) $18.63 = 10 + \boxed{8} + \frac{6}{10} + \frac{\boxed{3}}{100}$

(c) $25.08 = \boxed{20} + 5 + \frac{8}{\boxed{100}}$

(d) $203.952 = \boxed{200} + 3 + \frac{\boxed{9}}{10} + \frac{5}{\boxed{100}} + \frac{\boxed{2}}{1000}$

4. Fill in the boxes with the symbol > or < :

(a) $4.053 > 3.925$ (b) $5.28 < 5.293$

(c) $3.6 > 0.702$ (d) $0.086 < 1.02$

(e) $2.215 < 8.606$ (f) $0.418 > 0.417$

5. Arrange the following decimals in ascending order :

(a) First we convert the given decimal fractions into like decimals, we get;

$4.9 = 4.90, 2.08 = 2.08, 1.87 = 1.87, 3 = 3.00$ and $5.2 = 5.20$

Now, arranging 490, 208, 187, 300 and 520 in ascending order, we get;

187, 208, 300, 490 and 520

$\therefore$ The decimal fractions when arranged in ascending order are :

1.87, 2.08, 3, 4.9 and 5.2

(b) First we convert the given decimal fractions into like decimals, we get;

6.307 = 6.307, 15.21 = 15.210, 0.985 = 0.985, 0.97 = 0.970, 6.4 = 6.400 and 5.92 = 5.920

Now, arranging 6307, 15210, 985, 970, 6400 and 5920 in ascending order, we get;

970, 985, 5920, 6307, 6400, 15210

∴ The decimal fractions when arranged in ascending order are :

0.97, 0.985, 5.92, 6.307, 6.4 and 15.21

(d) First we convert the given decimal fractions into like decimals, we get;

0.7 = 0.700, 1.32 = 1.320, 8.006 = 8.006, 5.621 = 5.621, 0.73 = 0.730 and 6.02 = 6.020

Now, arranging 700, 1320, 8006, 5621, 730 and 6020 in ascending order, we get;

700, 730, 1320, 5621, 6020, 8006

∴ The decimal fractions when arranged in ascending order are :

0.7, 0.73, 1.32, 5.621, 6.02, 8.006

6. Arrange the following decimals in descending order :

(a) First we convert given decimal fractions into like decimals, we get.

5.7 = 5.70, 0.49 = 0.49, 12.6 = 12.60, 10.52 = 10.52 and 5.9 = 5.90

Now, arranging 570, 49, 1260, 1052 and 590 in descending order, we get;

1260, 1052, 590, 570, 49

∴ The decimal fractions when arranged in descending order are :

12.6, 10.52, 5.9, 5.7 and 0.49

(b) First we convert given decimal fractions into like decimals, we get.

11.85 = 11.850, 13.62 = 13.620, 9.106 = 9.106, 0.857 = 0.857 and 6.008 = 6.008

Now, arranging 11850, 13620, 9106, 857 and 6008 in descending order, we get;

1260, 1052, 590, 570, 49

$\therefore$ The decimal fractions when arranged in descending order are :

12.6, 10.52, 5.9, 5.7 and 0.49

(c) First we convert given decimal fractions into like decimals, we get.

7.7 = 7.700, 0.77 = 0.770, 77.7 = 77.700, 7.07 = 7.070 and 7.007 = 7.007

Now, arranging 7700, 770, 77700, 7070 and 7007 in descending order, we get;

77700, 7700, 7070, 7007, 770

$\therefore$ The decimal fractions when arranged in descending order are :

77.7, 7.7, 7.07, 77.007, 0.77

(d) First we convert given decimal fractions into like decimals, we get.

13.6 = 13.600, 63.1 = 63.100, 13.16 = 13.160, 13.163 = 13.163 and 12.98 and 12.980

Now, arranging 13600, 63100, 13160, 13163 and 12980 in descending order, we get;

63100, 13600, 13163, 13160, 12980

$\therefore$ The decimal fractions when arranged in descending order are :

63.1, 13.6, 13.163, 13.16, 12.98

Exercise - 10.3

1. Convert the following decimals into common fractions in the lowest terms :

(a) $0.2 = \frac{2}{10} = \frac{1}{5}$

(b) $0.72 = \frac{72}{100} = \frac{18}{25}$

(c) $5.02 = 5 + 0.02 = 5 + \frac{2}{100} = 5 + \frac{1}{50} = 5\frac{1}{50}$

(d) $0.05 = \frac{5}{100} = \frac{1}{20}$

(e) $0.007 = \frac{7}{1000}$

(f) $82.07 = 82 + \frac{7}{100} = 82\frac{7}{100}$

(g) $6.23 = 6 + 0.23 = 6 + \frac{23}{100} = 6\frac{23}{100}$

(h) $18.24 = 18 + 0.24 = 18 + \frac{24}{100} = 18 + \frac{3}{25} = 18\frac{6}{25}$

(i) $15.635 = 15 + 0.635 = 15 + \frac{635}{1000} = 15 + \frac{127}{200} = 15\frac{127}{200}$

(j) $34.275 = 34 + 0.275 = 34 + \frac{275}{1000} = 34 + \frac{11}{40} = 34\frac{11}{40}$

(k) $60.855 = 60 + 0.855 = 60 + \frac{855}{1000} = 60 + \frac{171}{200} = 60\frac{71}{200}$

(l) $0.222 = \frac{222}{1000} = \frac{111}{500}$

2. Convert these fractions into decimals :

(a) $\frac{12}{5} = \frac{12 \times 2}{5 \times 2} = \frac{24}{10} = 2.4$

(b) $\frac{13}{4} = \frac{13 \times 25}{4 \times 25} = \frac{325}{100} = 3.25$

(c) $\frac{7}{20} = \frac{7 \times 5}{20 \times 5} = \frac{35}{100} = 0.35$

(d) $\frac{33}{100} = 0.33$

(e) $\frac{49}{1000} = 0.049$

(f) $19\frac{7}{25} = 19 + \frac{7}{25} = 19 + \frac{7 \times 4}{25 \times 4} = 19 + \frac{28}{100} = 19 + 0.28 = 19.28$

(g) $21\frac{9}{16} = 21 + \frac{9}{16} = 21 + \frac{9 \times 625}{16 \times 625} = 21 + \frac{5625}{1000}$

$= 21 + 0.5625 = 21.5625$

(h) $26\frac{3}{40} = 26+\frac{3}{40} = 26+\frac{3\times 25}{40\times 25} = 26+\frac{75}{1000}$

$= 26+0.075 = 26.075$

(i) $\frac{245}{100} = 2.45$

(j) $\frac{700}{125} = \frac{700\times 8}{125\times 8} = \frac{5600}{1000} = 5.600 = 5.6$

(k) $6\frac{7}{200} = 6+\frac{7}{200} = 6+\frac{7\times 5}{200\times 5} = 6+\frac{35}{1000} = 6+0.035 = 6.035$

(l) $5\frac{13}{1000} = 5+\frac{13}{1000} = 5+0.013 = 5.013$

Exercise - 10.4

1. Express each of the following using decimal point :

(a) 38 m 42 cm $= 38\text{ m} + 42\text{ cm}$

$= 38\text{ m} + \frac{42}{100}\text{ m}$ $[\because 1\text{ cm} = \frac{1}{100}\text{ m}]$

$= 38\text{ m} + 0.42\text{ m}$

$= (38+0.42)\text{ m} = 38.42\text{ m}$

(b) 81 m 25 cm $= 81\text{ m} + 25\text{ cm}$

$= 81\text{ m} + \frac{25}{100}\text{ m}$

$= 81\text{ m} + 0.25\text{ m}$

$= 81.25\text{ m}$

(c) 44 m 7 cm $= 44\text{ m} + 7\text{ cm}$

$= 44\text{ m} + \frac{7}{100}\text{ m}$

$= 44\text{ m} + 0.07\text{ m}$

$= 44.07\text{ m}$

(d) 6 m 8 mm $= 6\text{ cm} + 8\text{ mm}$

$= 6\text{ cm} + \frac{8}{10}\text{ cm}$ $[\because 1\text{ mm} = \frac{1}{10}\text{ cm}]$

$= 6\text{ cm} + 0.8\text{ cm}$

$= 6.8\text{ cm}$

(e) 13 cm 6 mm $= 13\text{ cm} + 6\text{ mm}$

$= 13\text{ cm} + \frac{6}{10}\text{ cm}$

$= 13\text{ cm} + 0.6\text{ cm}$

$= 13.6\text{ cm}$

(f) 15 km 726 m $= 15\text{ km} + 726\text{ m}$

$= 15\text{ km} + \frac{726}{1000}\text{ km}$ $[\because 1\text{ m} = \frac{1}{1000}\text{ km}]$

$= 15\text{ km} + 0.726\text{ km}$

$= 15.726\text{ km}$

(g) 52 km 87 m $= 52\text{ km} + 87\text{ m}$

$= 52\text{ km} + \frac{87}{1000}\text{ km}$

$= 52\text{ km} + 0.087\text{ km}$

$= 52.087\text{ km}$

(h) 86 km 2 m $= 86\text{ km} + 2\text{ m}$

$= 86\text{ km} + \frac{2}{1000}\text{ km}$

$= 86\text{ km} + 0.002\text{ km}$

$= 86.002\text{ km}$

(i) 23 kg 425 g $= 23\text{ kg} + 425\text{ g}$

$= 23\text{ kg} + \frac{425}{1000}\text{ kg}$ $[\because 1\text{ g} = \frac{1}{1000}\text{ kg}]$

$= 23\text{ kg} + 0.425\text{ kg}$

$= 23.425\text{ kg}$

(j) 47 kg 80 g $= 47\text{ kg} + 80\text{ g}$

$= 47\text{ kg} + \frac{80}{1000}\text{ kg}$

$= 47\text{ kg} + 0.08\text{ kg}$

$= 47.08\text{ kg}$

(k) 63 kg 8 g $= 63\text{ kg} + 8\text{ g}$

$= 63\text{ kg} + \frac{8}{1000}\text{ kg}$

$= 63\text{ kg} + 0.008\text{ kg}$

$= 63.008\text{ kg}$

(l) 71375 ml $= 71 + 375\text{ ml}$

$= 71 + \frac{375}{1000}\text{ l}$ $[\because 1\text{ ml} = \frac{1}{1000}\text{ l}]$

$= 71 + 0.375\text{ l}$

$= 7.375\text{ l}$

(m) 381450 ml $= 381 + 450\text{ ml}$

$= 381 + \frac{450}{1000}\text{ l}$

$= 381 + 0.450\text{ l}$

$= 38.450\text{ l}$

(n) 521 7 ml $= 521 + 7\text{ ml}$

$= 521 + \frac{7}{1000}\text{ l}$

$= 521 + 0.007\text{ l}$

$= 52.007\text{ l}$

(o) 80 kg 500 g $= 80\text{ kg} + 500\text{ g}$

$= 80\text{ kg} + \frac{500}{1000}\text{ kg}$ $[\because 1\text{ cm} = \frac{1}{1000}\text{ m}]$

$= 80\text{ kg} + 0.5\text{ kg}$

$= 80.5\text{ kg}$

2. Rewrite each of the following without decimal point :

(a) 8.27 m $= (8 + 0.27)\text{ m}$

$= 8\text{ m} + 0.27\text{ m}$

$= 8\text{ m} + (0.27 \times 100)\text{ cm}$ $[\because 1\text{ m} = 100\text{ cm}]$

$= 8\text{ m} + 27\text{ cm}$

$= 8\text{ m } 27\text{ cm}$

(b) 14.08 m $= (14 + 0.08)$ m
$= 14$ m $+ 0.08$ m
$= 14$ m $+ (0.08 \times 100)$ cm
$= 14$ m $+ 8$ cm
$= 14$ m 8 cm

(c) 25.6 m $= (25 + 0.6)$ m
$= 25$ m $+ 0.6$ m
$= 25$ m $+ (0.6 \times 100)$ cm
$= 25$ m $+ 60$ cm
$= 25$ m 60 cm

(d) 45.376 km $= (45 + 0.376)$ km
$= 45$ km $+ 0.376$ km
$= 45$ km $+ (0.376 \times 1000)$ m [$\because$ 1 km = 1000 m]
$= 45$ m $+ 376$ cm
$= 45$ m 376 cm

(e) 13.648 kg $= (13 + 0.648)$ kg
$= 13$ kg $+ 0.648$ kg
$= 13$ kg $+ (0.648 \times 1000)$ g [$\because$ 1 kg = 1000 g]
$= 13$ kg $+ 648$ g
$= 13$ kg 648 g

(f) 46.5 kg $= (46 + 0.5)$ kg
$= 46$ kg $+ 0.5$ kg
$= 46$ kg $+ (0.5 \times 1000)$ g
$= 46$ kg $+ 500$ g
$= 46$ kg 500 g

(g) 16.365 l $= (16 + 0.365)$ l
$= 16$ l $+ 0.365$ l
$= 16$ l $+ (0.365 \times 1000)$ ml [$\because$ 1 l = 1000 ml]
$= 16$ l $+ 365$ ml
$= 16$ l 365 ml

(h) 63.008 l $= (63 + 0.008)$ l
$= 63$ l $+ 0.008$ l
$= 63$ l $+ (0.008 \times 1000)$ ml

$= 63\,l + 8\,ml$

$= 8\,m\,27\,cm$

(i) 72.05 l $= (72 + 0.5)\,l$

$= 72\,l + 0.5\,l$

$= 72\,l + (0.5 \times 1000)\,ml$

$= 72\,l + 500\,ml$

$= 72\,l\,500\,ml$

(j) 60.086 l $= (60 + 0.086)\,l$

$= 60\,l + 0.086\,l$

$= 60\,l + (0.086 \times 1000)\,ml$

$= 60\,l + 86\,ml$

$= 60\,l\,86\,ml$

Exercise - 10.5

1. Find the sum :

(a)
```
   2.056
  13.800
+  9.430
  15.286
```

(b)
```
  73.460
   0.820
+ 26.047
 100.327
```

(c)
```
  42.050
  20.007
+ 84.390
 146.447
```

(d)
```
  68.392
   4.800
+ 102.068
 175.260
```

(e)
```
  39.290
 127.046
+  16.795
 183.131
```

(f)
```
  24.926
   3.800
+ 138.549
 167.275
```

2. Arrange in columns and add :

(a)
```
   6.28
   3.52
+  3.27
  13.07
```

Hence, $6.28 + 3.52 + 3.27$
$= 13.07$

(b)
```
   0.47
   0.60
+ 46.30
  47.37
```

Hence, $0.47 + 0.6 + 46.3$
$= 47.37$

(a)

$$\begin{array}{r} 23.65 \\ 24.00 \\ +\ 29.08 \\ \hline 96.73 \end{array}$$

Hence, 23.65 + 24 + 29.08
= 96.73

(b)

$$\begin{array}{r} 42.670 \\ 7.263 \\ +\ 20.000 \\ \hline 69.933 \end{array}$$

Hence, 42.67 + 7.263 + 20
= 69.933

3. Solve :

(a)

$$\begin{array}{r} 8.30 \\ 0.54 \\ +\ 20.03 \\ \hline 28.87 \end{array}$$

Hence, 8.3 + 0.54 + 20.03
= 28.87

(b)

$$\begin{array}{r} 70.250 \\ 9.005 \\ +\ 2.700 \\ \hline 81.955 \end{array}$$

Hence, 70.25 + 9.005 + 2.7
= 81.955

(c)

$$\begin{array}{r} 27.076 \\ 0.770 \\ +\ 0.004 \\ \hline 27.850 \end{array}$$

Hence, 27.076 + 0.770 + 0.004
= 27.850

(d)

$$\begin{array}{r} 150.63 \\ 25.20 \\ +\ 41.00 \\ \hline 216.83 \end{array}$$

Hence, 150.63 + 25.2 + 41
= 216.83

(e)

$$\begin{array}{r} 27.000 \\ 0.512 \\ 18.600 \\ \hline 46.112 \end{array}$$

Hence, 27 + 0.512 + 18.6
= 46.112

(f)

$$\begin{array}{r} 0.750 \\ 10.325 \\ +\ 48.000 \\ \hline 59.075 \end{array}$$

Hence, 0.75 + 10.325 + 48
= 59.075

4. Subtract :

(a)

$$\begin{array}{r} 30.64 \\ -\ 18.23 \\ \hline 12.41 \end{array}$$

Hence, 30.64 – 18.23 = 12.41

(b)

$$\begin{array}{r} 9.238 \\ -\ 6.051 \\ \hline 3.187 \end{array}$$

Hence, 9.238 – 6.051 = 3.187

(c)

$$\begin{array}{r} 0.57 \\ -\ 0.27 \\ \hline 0.30 \end{array}$$

Hence, 0.57 – 0.27 = 0.30

(d)

$$\begin{array}{r} 1.402 \\ -\ 0.715 \\ \hline 0.687 \end{array}$$

Hence, 1.402 – 0.715 = 0.687

(e)

$$\begin{array}{r} 14.20 \\ -\ 5.87 \\ \hline 8.33 \end{array}$$

Hence, 14.2 – 5.87 = 8.33

(f)

$$\begin{array}{r} 250.00 \\ -\ 109.54 \\ \hline 140.46 \end{array}$$

Hence, 250 – 109.54 = 140.46

5. Find the difference :

(a)

$$\begin{array}{r} 7.63 \\ -\ 2.41 \\ \hline 5.22 \end{array}$$

Hence, 7.63 – 2.41 = 5.22

(b)

$$\begin{array}{r} 18.627 \\ -\ 15.908 \\ \hline 2.719 \end{array}$$

Hence, 18.627 – 15.908 = 2.719

(c)

$$\begin{array}{r} 25.06 \\ -\ 2.87 \\ \hline 22.19 \end{array}$$

Hence, 25.06 – 2.87 = 22.19

(d)

$$\begin{array}{r} 0.96 \\ -\ 0.58 \\ \hline 0.38 \end{array}$$

Hence, 0.96 – 0.58 = 0.38

(e)

$$\begin{array}{r} 13.60 \\ -\ 5.37 \\ \hline 8.23 \end{array}$$

Hence, 13.6 – 5.37 = 8.23

(f)

$$\begin{array}{r} 15.000 \\ -\ 6.925 \\ \hline 8.075 \end{array}$$

Hence, 15 – 6.925 = 8.075

6. First we add 49.15 and 26.73.

$$\begin{array}{r} 49.15 \\ -\ 26.73 \\ \hline 75.88 \end{array}$$

Now, we subtract 75.88 from 85.68.

$$\begin{array}{r} 85.68 \\ -\ 75.88 \\ \hline 9.80 \end{array}$$

Hence, the required difference is 9.80.

7. First we add 29.17 and 34.586.

$$\begin{array}{r} 29.170 \\ +\ 34.586 \\ \hline 63.756 \end{array}$$

Now, we subtract 63.756 from 70.

$$\begin{array}{r} 70.000 \\ +\ 63.756 \\ \hline 6.244 \end{array}$$

Hence, the required difference is 6.244.

8. First we subtract 28.205 from 62.04.

$$\begin{array}{r} 62.040 \\ -\ 28.205 \\ \hline 33.835 \end{array}$$

Now, we add 33.835 to 18.6.

$$\begin{array}{r} 33.835 \\ +\ 18.600 \\ \hline 52.435 \end{array}$$

Hence, the required difference is 52.435.

Exercise - 10.6

1. Find :

(a) First we multiply 25 by 4.

$$\begin{array}{r} 25 \\ \times\ 4 \\ \hline 100 \end{array}$$

The given decimal number has one decimal places.

So, the product will have one decimal places.

Thus, $2.5 \times 4 = 10.1 = 10$

(b) First we multiply 927 by 5.

```
  927
    × 5
 4635
```

The given decimal number has two decimal places.

So, the product will have two decimal places.

Thus, $9.27 \times 5 = 46.35$

(c) First we multiply by 14316 by 9.

```
  14316
      × 9
 128844
```

The given decimal number has three decimal places.

So, the product will have three decimal places.

Thus, $14.316 \times 9 = 128.844$

(d) First we multiply by 65176 by 14.

```
   65176
      × 14
  260704
  651760
 912464
```

Thus, $65.176 \times 14 = 912.464$

(e) First we multiply by 31205 by 21.

```
   31205
      × 21
   31205
  624100
 655305
```

Thus, $312.05 \times 21 = 6553.05$

(f) First we multiply by 6524 by 153.

```
    6524
    × 153
   19572
  326200
 652400
 998172
```

Thus, $65.24 \times 153 = 9981.72$

(g) First we multiply by 85 by 25.

```
     85
   × 25
   ----
    425
   1700
   2125
```

Thus, $0.085 \times 25 = 2.125$

(h) First we multiply by 246 by 6.

```
    246
      6
   ----
   1476
```

Thus, $0.246 \times 6 = 1.476$

(i) First we multiply by 16175 by 37.

```
   16175
      37
  ------
  113225
  485250
  598475
```

Thus, $16.175 \times 37 = 598.475$

(j) First we multiply by 7309 by 125.

```
    7309
     125
   -----
   36545
  146180
  730900
  913625
```

Thus, $73.09 \times 125 = 9136.25$

(k) First we multiply by 34420 by 218.

```
      34420
        418
   --------
     275360
     344200
   13768000
   14387560
```

Thus, $34.420 \times 218 = 14378.56$
$= 14387.56$

(l) First we multiply by 126007 by 84.

$$\begin{array}{r} 126007 \\ \times\ 84 \\ \hline 504028 \\ 10080560 \\ \hline 10584588 \end{array}$$

Thus, $126.007 \times 84 = 10584.588$

2. Find the following products :

(a) $24 \times 10 = 240$

Hence, $2.4 \times 10 = 24.0 = 24$

(b) $4253 \times 10 = 42530$

Hence, $42.53 \times 10 = 425.30 = 425.3$

(c) $316 \times 10 = 3160$

Hence, $0.316 \times 10 = 3.160 = 3.16$

(d) $152383 \times 10 = 152383$

Hence, $152.383 \times 10 = 1523.830 = 1523.83$

(e) $94 \times 100 = 9400$

Hence, $9.4 \times 100 = 940.0 = 940$

(f) $3184 \times 100 = 318400$

Hence, $31.84 \times 100 = 3184.00 = 3184$

(g) $38 \times 100 = 3800$

Hence, $0.38 \times 100 = 38.00 = 38$

(h) $9206 \times 100 = 920600$

Hence, $9.206 \times 100 = 920.600 = 920.6$

(i) $1506 \times 1000 = 1506000$

Hence, $15.06 \times 1000 = 15060.000 = 15060$

(j) $37425 \times 1000 = 37425000$

Hence, $37.425 \times 1000 = 37425.000 = 37425$

(k) $62 \times 1000 = 62000$

Hence, $0.62 \times 1000 = 620.000 = 620$

(l) $27 \times 1000 = 27000$

Hence, $0.027 \times 1000 = 27.000 = 27$

Exercise - 12.7

1. Find the product :

(a) $\begin{array}{r} 9.45 \\ \times\ 7.3 \\ \hline 68.985 \end{array}$ (b) $\begin{array}{r} 13.526 \\ \times\ 2.7 \\ \hline 36.5202 \end{array}$ (c) $\begin{array}{r} 7.058 \\ \times\ 3.6 \\ \hline 25.4088 \end{array}$ (d) $\begin{array}{r} 0.409 \\ \times\ 0.8 \\ \hline 0.3272 \end{array}$

2. Find the value of :

(a) $2.3 \times 3.5 = \frac{23}{10} \times \frac{35}{10} = \frac{23 \times 35}{10 \times 10} = \frac{805}{100} = 8.05$

Hence, $2.5 \times 3.5 = 8.05$

(b) $13.6 \times 8.1 = \frac{136}{10} \times \frac{81}{10}$

$= \frac{136 \times 81}{10 \times 10} = \frac{11016}{100} = 110.16$

Hence, $16.6 \times 8.1 = 110.16$

(c) $7.5 \times 0.3 = \frac{75}{10} \times \frac{3}{10}$

$= \frac{75 \times 3}{10 \times 10} = \frac{225}{100} = 2.25$

Hence, $7.5 \times 0.3 = 2.25$

(d) $16.3 \times 0.7 = \frac{163}{10} \times \frac{7}{10}$

$= \frac{163 \times 7}{10 \times 10} = \frac{1141}{100} = 11.41$

Hence, $16.3 \times 0.7 = 11.41$

(e) $44.5 \times 2.5 = \frac{445}{10} \times \frac{25}{10}$

$= \frac{445 \times 25}{10 \times 10} = \frac{11125}{100} = 111.25$

Hence, $44.5 \times 2.5 = 11.25$

(f) $23.81 \times 0.6 = \frac{2381}{100} \times \frac{6}{10}$

$$= \frac{2381 \times 6}{100 \times 10} = \frac{14286}{1000} = 14.286$$

Hence, $23.81 \times 0.6 = 14.286$

(g) $32.07 \times 0.2 = \frac{3207}{100} \times \frac{2}{10}$

$$= \frac{3207 \times 2}{100 \times 10} = \frac{6414}{1000} = 6.414$$

Hence, $32.07 \times 0.2 = 6.414$

(h) $0.8 \times 0.4 = \frac{8}{10} \times \frac{4}{10} = \frac{8 \times 4}{10 \times 10} = \frac{32}{100} = 0.32$

Hence, $0.8 \times 0.4 = 0.32$

(i) $0.43 \times 0.5 = \frac{43}{100} \times \frac{5}{10}$

$$= \frac{43 \times 5}{100 \times 10} = \frac{215}{1000} = 0.215$$

Hence, $0.43 \times 0.5 = 0.215$

(j) $0.036 \times 0.3 = \frac{36}{1000} \times \frac{3}{10}$

$$= \frac{36 \times 3}{1000 \times 10} = \frac{108}{10000} = 0.0108$$

Hence, $0.036 \times 0.3 = 0.0108$

(k) $7.008 \times 3.5 = \frac{7008}{1000} \times \frac{35}{10}$

$$= \frac{7008 \times 35}{10000} = \frac{245280}{10000} = 24.5280$$

Hence, $7.008 \times 3.5 = 24.5280 = 24.528$

(l) $0.007 \times 9.23 = \frac{7}{1000} \times \frac{923}{100}$

$$= \frac{7 \times 923}{1000 \times 100} = \frac{6461}{100000} = 0.06461$$

Hence, $0.007 \times 9.23 = 0.06461$

(l) $0.089 \times 2.5 = \frac{89}{1000} \times \frac{25}{10}$

$= \frac{89 \times 25}{1000 \times 10} = \frac{2225}{10000} = 0.2225$

Hence, $0.089 \times 2.5 = 0.2225$

Exercise - 12.8

1. Divide :

(a)

```
      4.6
4 ) 18.4
   - 16
     2 4
   - 2 4
       0
```

Thus, $18.4 \div 4 = 4.6$

(b)

```
      4.7
5 ) 23.5
   - 20
     3 5
   - 3 5
       0
```

Thus, $23.5 \div 5 = 4.7$

(c)

```
      6.6
7 ) 46.2
   - 42
     4 2
   - 4 2
       0
```

Thus, $49.2 \div 7 = 6.6$

(d)

```
      0.9
9 ) 8.1
   - 0
     8 1
   - 8 1
       0
```

Thus, $8.1 \div 9 = 0.6$

(e)

```
      5.5
15 ) 82.5
   - 75
     7 5
   - 7 5
       0
```

Thus, $82.5 \div 15 = 5.5$

(f)

```
      8.035
12 ) 96.420
   - 96
      4
    - 0
      42
    - 36
       60
     - 60
        0
```

Thus, $96.42 \div 12 = 8.035$

(g)

```
        4.845
18 ) 87.210
   – 72
     152
   – 144
       81
     – 72
        90
      – 90
         0
```

Thus, $87.21 \div 18 = 4.845$

(h)

```
        3.308
14 ) 46.312
   – 42
      43
    – 42
       11
      – 0
       112
     – 112
         0
```

Thus, $46.312 \div 14 = 3.308$

(i)

```
        0.552
14 ) 7.728
   – 0
     77
   – 70
      72
    – 70
      28
   – 28
      0
```

Thus, $7.728 \div 14 = 0.552$

(j)

```
        8.27
18 ) 124.05
   – 120
      40
    – 30
     105
   – 105
       0
```

Thus, $124.05 \div 15 = 8.27$

(k)

```
        34.54
21 ) 725.34
   – 63
     95
   – 84
     113
   – 105
       84
     – 84
        0
```

(l)

```
        0.300625
32 ) 9.620000
   – 0
     96
   – 96
      2
    – 0
     20
    – 0
     200
     192
       80
       64
      160
     –160
        0
```

Thus, $725.34 \div 21 = 34.54$

(m)

```
        17.9575
16 ) 287.3200
   - 16
     127
   - 112
       153
     - 144
         92
       - 80
         120
       - 112
           80
          -80
            0
```

Thus, $287.32 \div 16 = 17.9575$

Thus, $9.62 \div 32 = 0.300625$

(n)

```
        0.926
43 ) 39.818
   - 0
     398
   - 387
       111
     - 86
       258
     - 258
         0
```

Thus, $39.818 \div 43 = 0.926$

(o)

```
        2.3848
25 ) 59.6200
   - 50
     96
   - 75
       212
     - 200
         120
       - 100
           200
         - 200
             0
```

Thus, $59.62 \div 25 = 2.3848$

(p)

```
        0.059
13 ) 0.767
   - 0
     76
   - 65
     117
   - 117
       0
```

Thus, $0.767 \div 13 = 0.059$

(q)

```
        1.275
4 ) 5.100
  - 4
    11
  - 8
    30
  - 28
     20
   - 20
      0
```

Hence, $5.1 \div 4 = 1.275$

Exercise - 12.9

1. Find the quotient :

(a)

```
      0.832
10 ) 8.320
   - 0
     83
   - 80
      32
    - 30
       20
     - 20
        0
```

Hence, $8.32 \div 10 = 0.832$

(b)

```
       1.834
100 ) 183.400
    - 100
      834
    - 800
      340
    - 300
      400
    - 400
        0
```

Hence, $183.4 \div 100 = 1.834$

(c)

```
        0.03952
1000 ) 39.52000
     - 0
       3952
     - 3000
        9520
      - 9000
         5200
       - 5000
          2000
        - 2000
             0
```

Hence, $39.52 \div 1000 = 0.03952$

(d)

```
       0.1305
100 ) 13.0500
    - 100
      305
    - 300
       50
     - 0
      500
    - 500
        0
```

Hence, $13.05 \div 100 = 0.1305$

(e)

```
      0.006
10 ) 0.060
   - 0
     6
   - 0
     60
   - 60
      0
```

(f)

```
        0.05023
1000 ) 50.23000
     - 0
       5023
     - 5000
        230
      - 0
        2300
      - 2000
         3000
       - 3000
            0
```

Hence, $0.06 \div 10 = 0.006$ Hence, $50.23 \div 1000 = 0.05023$

2. Fill in the blanks with 10, 100 or 1000 so as to make the following statements true :

(a) 10, (b) 100, (c) 10, (d) 100, (e) 100, (f) 10

Exercise - 12.10

1. Divide :

(a) We have,

$$2.8 \div 0.4 = \frac{2.8}{0.4} = \frac{2.8 \times 10}{0.4 \times 10} = \frac{28}{4} = 7$$

$$\begin{array}{r} 7 \\ 4\overline{)28} \\ -28 \\ \hline 0 \end{array}$$

Hence, $2.8 \div 0.4 = 7$

(b) $$0.36 \div 0.3 = \frac{0.36}{0.3} = \frac{0.36 \times 10}{0.3 \times 10} = \frac{3.6}{3} = 1.2$$

$$\begin{array}{r} 1.2 \\ 3\overline{)3.6} \\ -3\downarrow \\ 6 \\ -6 \\ \hline 0 \end{array}$$

Hence, $0.36 \div 0.3 = 1.2$

(c) $$0.125 \div 0.05 = \frac{0.125}{0.05} = \frac{0.125 \times 100}{0.05 \times 100} = \frac{12.5}{5} = 2.5$$

$$\begin{array}{r} 2.5 \\ 5\overline{)12.5} \\ -10\downarrow \\ 25 \\ -25 \\ \hline 0 \end{array}$$

Hence, $0.125 \div 0.05 = 2.5$

(d) $$6.39 \div 0.9 = \frac{6.39}{0.9} = \frac{6.39 \times 10}{0.9 \times 10} = \frac{63.9}{9} = 7.1$$

$$\begin{array}{r} 7.1 \\ 9\overline{)63.9} \\ -63\downarrow \\ 9 \\ -9 \\ \hline 0 \end{array}$$

Hence, $6.39 \div 0.9 = 7.1$

(e) $$1.52 \div 6.2 = \frac{1.52}{0.2} = \frac{1.52 \times 10}{0.2 \times 10} = \frac{15.2}{2} = 7.6$$

$$\begin{array}{r} 7.6 \\ 2\overline{)15.2} \\ -14\downarrow \\ 12 \\ -12 \\ \hline 0 \end{array}$$

Hence, $1.52 \div 6.2 = 7.6$

(f) $0.56 \div 0.7 = \dfrac{0.56}{0.7} = \dfrac{0.56 \times 10}{0.7 \times 10}$

$= \dfrac{5.6}{7} = 0.8$

$$\begin{array}{r} 0.8 \\ 7\overline{)5.6} \\ -\,5\;6 \\ \hline 0 \end{array}$$

Hence, $0.56 \div 0.7 = 0.8$

(g) $0.093 \div 0.31 = \dfrac{0.093}{0.31} = \dfrac{0.093 \times 100}{0.31 \times 100}$

$= \dfrac{9.30}{31} = 0.3$

$$\begin{array}{r} 0.3 \\ 31\overline{)9.3} \\ -\,9\;3 \\ \hline 0 \end{array}$$

Hence, $0.093 \div 31 = 0.3$

(h) $0.416 \div 0.16 = \dfrac{0.416}{0.16} = \dfrac{0.416 \times 100}{0.16 \times 100}$

$= \dfrac{41.6}{16} = 2.6$

$$\begin{array}{r} 2.6 \\ 16\overline{)41.6} \\ -\,32\downarrow \\ 96 \\ -\,96 \\ \hline 0 \end{array}$$

Hence, $0.416 \div 0.16 = 2.6$

(i) $0.39861 \div 0.43 = \dfrac{0.39861}{0.43} = \dfrac{0.39861 \times 100}{0.43 \times 100}$

$= \dfrac{39.861}{43} = 0.927$

$$\begin{array}{r} 0.927 \\ 43\overline{)39.861} \\ -\,387\downarrow \\ 116 \\ -\,86 \\ 301 \\ -\,301 \\ \hline 0 \end{array}$$

Hence, $0.39861 \div 0.43 = 0.927$

(j) $15.2306 \div 50.6 = \dfrac{15.2306}{50.6}$

$= \dfrac{15.2306 \times 10}{50.6 \times 10}$

$= \dfrac{152.306}{506} = 0.301$

$$\begin{array}{r} 0.301 \\ 506\overline{)152.306} \\ -\,1518\downarrow \\ 50 \\ -\,0 \\ 506 \\ -\,506 \\ \hline 0 \end{array}$$

Hence, $15.2306 \div 50.6 = 0.301$

(k) $2.0418 \div 0.083 = \dfrac{2.0418}{0.083}$

$= \dfrac{2.0418 \times 1000}{0.083 \times 1000}$

$= \dfrac{2041.8}{83} = 24.6$

```
      24.6
83 ) 2041.8
   - 166
      281
    - 332
       498
     - 498
         0
```

Hence, $2.0418 \div 0.083 = 24.6$

(l) $0.0625 \div 12.5 = \dfrac{0.0625}{12.5}$

$= \dfrac{0.0625 \times 10}{12.5 \times 10}$

$= \dfrac{0.625}{125} = 0.005$

```
      0.005
125 ) 0.625
    - 0
      06
    - 0
      62
    - 0
      625
    - 625
        0
```

Hence, $0.0625 \div 12.5 = 0.005$

(m) $0.36 \div 1.2 = \dfrac{0.36}{1.2} = \dfrac{0.36 \times 10}{1.2 \times 10} = \dfrac{3.6}{12} = 0.3$

```
     0.3
12 ) 3.6
   - 3 6
       0
```

Hence, $0.36 \div 1.2 = 0.3$

(n) $0.0096 \div 0.4 = \dfrac{0.0096}{0.4}$

$= \dfrac{0.0096 \times 10}{0.4 \times 10}$

$= \dfrac{0.096}{4} = 0.024$

```
     0.024
4 ) 0.096
  - 0
    0
  - 0
    9
  - 8
    16
  - 16
     0
```

Hence, $0.0096 \div 0.4 = 0.024$

(o) $0.0729 \div 8.1 = \dfrac{0.0729}{8.1}$

$= \dfrac{.0729 \times 10}{8.1 \times 10}$

$= \dfrac{0.729}{81} = 0.009$

```
     0.009
81 ) 0.729
   - 0
     07
   - 0
     72
   - 0
     729
   - 729
       0
```

Hence, $0.0729 \div 8.1 = 0.009$

Exercise - 12.11

1. Find the quotient in each of the following :

(a) $12 \div 1.5 = \frac{12}{1.5} = \frac{12 \times 10}{1.5 \times 10} = \frac{120}{15} = 8$

(b) $72 \div 2.4 = \frac{72}{2.4} = \frac{72 \times 10}{2.4 \times 10} = \frac{720}{24} = 30$

(c) $152 \div 1.9 = \frac{152}{1.9} = \frac{152 \times 10}{1.9 \times 10} = \frac{1520}{19} = 80$

(d) $25 \div 0.05 = \frac{25}{0.05} = \frac{25 \times 100}{0.05 \times 100} = \frac{2500}{5} = 500$

(e) $21 \div 0.84 = \frac{21}{0.84} = \frac{21 \times 100}{0.84 \times 100} = \frac{2100}{84} = 25$

(f) $120 \div 0.016 = \frac{120}{0.016} = \frac{120 \times 1000}{0.016 \times 1000} = \frac{120000}{16} = 7500$

(g) $203 \div 0.07 = \frac{203}{0.07} = \frac{203 \times 100}{6.07 \times 100} = \frac{20300}{7} = 2900$

(h) $340 \div 0.32 = \frac{640}{0.32} = \frac{640 \times 100}{0.32 \times 100} = \frac{64000}{32} = 20$

2. Divide :

(a) $42 \div 8 = \frac{72}{8}$

```
      5.25
8 ) 4200
  - 40
     20
   - 16
      40
    - 40
       0
```

Hence, $42 \div 8 = 5.25$

(b) $13 \div 25 = \frac{13}{25} = 0.52$

```
      0.52
25 ) 1300
   - 125
      50
    - 50
       0
```

Hence, $13 \div 25 = 0.52$

(c) $32 \div 800 = \dfrac{32}{800}$

$= 0.04$

```
      0.04
800) 3200
   - 0
     3200
   - 3200
       0
```

Hence, $32 \div 800 = 0.04$

(d) $65 \div 520 = \dfrac{35}{520}$

$= 0.125$

```
       0.125
520) 65000
   - 520
     1300
   - 1040
      2600
    - 2600
        0
```

Hence, $65 \div 520 = 0.125$

3. Find the quotient in each of the following :

(a) $53 \div 20 = \dfrac{53}{20}$

$= 2.65$

```
      2.65
20) 5300
   - 40
     130
   - 120
      100
    - 100
        0
```

Hence, $53 \div 20 = 2.65$

(b) $110.4 \div 48 = \dfrac{110.4}{48}$

$= 2.3$

```
      2.3
48 ) 110.4
   - 96 ↓
      144
    - 144
        0
```

Hence, $110.4 \div 45 = 2.3$

(c) $7 \div 25 = \dfrac{7}{25}$

$= 0.28$

```
      0.28
25 )  700
    - 0↓
      70
    - 50
      200
    - 200
        0
```

Hence, $7 \div 25 = 0.28$

(d) $24 \div 40 = \dfrac{24}{40}$

$= 0.6$

```
      0.6
40 ) 240
   - 0↓↓
     240
   - 240
       0
```

Hence, $24 \div 40 = 0.6$

Chapter 11 : Prime Factorization

Exercise - 11

1. All the even numbers between 215 and 231 are :

216, 218, 220, 222, 224, 226, 228 and 230.

2. Write the prime factorization of the following numerals :

(a) Let us factorize the number by division method.

2	4 2
3	2 1
7	7
	1

Thus, the Prime factorization of $42 = 2 \times 3 \times 7$

(b) Let us factorize the number by division method.

2	5 4
3	2 7
3	9
3	3
	1

Thus, the Prime factorization of $54 = 2 \times 3 \times 3 \times 3$.

(c) Let us factorize the number of division method.

2	9 6
2	4 8
2	2 4
2	1 2
2	6
3	3
	1

Thus, the Prime factorization of $96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$

(d) Let us factorize the number by division method.

2	2 5 8
3	1 2 9
43	4 3
	1

Thus, the Prime factorization of 258 = 2 × 3 × 43

(e) Let us factorize the number by division method.

3	6 9 3
3	2 3 1
7	7 7
11	1 1
	1

Thus, the prime factorization of 693 = 3 × 3 × 7 × 11

3. In each of the following cases, state whether the first number is a factor of the second number :

(a) We divide 256 by 8.

```
      32
8 ) 256
   – 24
     16
   – 16
      0
```

Since, there is no remainder (i.e., 0 remainder). Thus, 8 is a factor 256.

(b) We divide 826 by 13.

```
      63
13 ) 826
   – 78
      46
    – 39
       7
```

Since, remainder is 7, hence, 13 is not a factor of 826.

(c) We divide 690 by 15.

```
      46
15 ) 690
   – 60
      90
    – 90
       0
```

Since, there is no remainder (i.e., 0 remainder). Thus, 15 is a factor 690.

(d) We divide 468 by 21.

```
      22
21 ) 468
   – 42
      48
    – 42
       6
```

Since, remainder is 6, hence, 22 is not a factor of 468.

4. The smallest 3 digit number which is the sum of the smallest prime number = 29 + 31 + 41 = 101

The sum of greatest two digit composite number = 44 + 57 = 101

Hence, the required number is 101.

5. **Look at the following pairs of numbers and determine whether they are co-prime or two prime :**

(a) Factor of 8 = 1 × 2 × 2× 2

Factor of 9= 1 × 3 × 3

Since, the given numbers 8 and 9 do not have common factor other than 1, so it is a co-prime.

(b) The given numbers 11 and 13 which have only one composite number between them.

$\therefore$ 11 and 13 are twin prime.

(c) Factor of 15 $= 1 \times 3 \times 5$

Factor of 16 $= 1 \times 2 \times 2 \times 2 \times 2$

Since, the given numbers 15 and 16 do not have common factor other than 1, so it is co-prime.

(d) Factor of 64 $= 1 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

Factor of 65 $= 1 \times 5 \times 13$

Since, the given numbers 64 and 65 do not have common factor other than 1, so it is co-prime.

(e) The given numbers 71 and 73 which have only one composite number between them.

$\therefore$ 71 and 73 are twin prime.

Chapter 12 : H.C.F and L.C.M

Exercise - 12.1

1. Find the common factors of :

(a) Factors of 8 are : 1, 2, 4, 8

Factors of 12 are : 1, 2, 3, 4, 6, 12

The common factors of 8 and 12 are 1, 2 and 4.

(b) Factors of 21 are : 1, 3, 7, 21

Factors of 28 are : 1, 2, 4, 7, 14, 28

The common factors of 21 and 28 are 1 and 7.

(c) Factors of 9 are : 1, 3, 3, 9

Factors of 16 are : 1, 2, 4, 4, 8, 16

The common factors of 9 and 16 are 1 and 2.

(d) Factors of 24 are : 1, 2, 3, 4, 6, 8, 12, 24

Factors of 16 are : 1, 2, 4, 4, 8, 16

The common factors of 24 and 16 are 1, 2, 4 and 8.

2. Find the HCF of :

(a) Factors of 9 are : 1, 3, 3, 9

Factors of 18 are : 1, 2, 3, 6, 9, 18

The common factors of 9 and 18 are 1 and 3.

Out of these, 3 is the greatest common factor.
Hence, HCF of 9 and 18 is 3.

(b) Factors of 16 are : 1, 2, 4, 4, 8, 16
Factors of 20 are : 1, 2, 4, 5, 10, 20
The common factors of 16 and 20 are 1, 2 and 4.
Out of these, 4 is the greatest common factor.
Hence, HCF of 16 and 20 is 4.

(c) Factors of 18 are : 1, 2, 3, 6, 9, 18
Factors of 24 are : 1, 2, 3, 4, 6, 8, 12, 24
Common factors of 18 and 24 are 1, 2, 3 and 6.

(d) Factors of 24 are : 1, 2, 3, 4, 6, 8, 12, 24
Factors of 36 are : 1, 2, 3, 4, 6, 9, 12, 18, 36
Common factors of 24 and 36 are 1, 2, 3, 4, 6 and 12
Out of these, 12 is the greatest common factor.
Hence, the HCF of 24 and 36 is 12.

3. Find all the common factors of :

(a) Factors of 30 are : 1, 2, 3, 5, 6, 10, 15, 30
Factors of 75 are : 1, 3, 5, 15, 25, 75
Factors of 105 are : 1, 3, 5, 7, 15, 21, 35, 105
The common factors of 30, 75 and 105 and 1, 3, 5 and 15.

(b) Factors of 18 are : 1, 2, 3, 6, 9, 18
Factors of 24 are : 1, 2, 3, 4, 6, 8, 12, 24
Factors of 36 are : 1, 2, 3, 4, 6, 9, 12, 18, 36
The common factors of 18, 24 and 36 are 1, 2, 3 and 6.

(c) Factors of 16 are : 1, 2, 4, 4, 8, 16
Factors of 30 are : 1, 2, 3, 5, 6, 10, 15, 30
Factors of 50 are : 1, 2, 5, 10, 25, 50
The common fractors of 16, 30 and 50 are 1, and 2.

(d) Factors of 18 are : 1, 2, 3, 6, 9, 18
Factors of 27 are : 1, 3, 9, 27
Factors of 54 are : 1, 2, 3, 6, 9, 18, 27, 54
The common factors of 18, 27 and 54 are 1, 3 and 9.

4. Find the HCF of the following set of umbers :

(a) Factors of 63 are : 1, 3, 7, 9, 21, 63

Factors of 105 are : 1, 3, 5, 7, 15, 21, 35, 105

Factors of 147 are : 1, 3, 7, 21, 49, 147

Common factors of 63, 105 and 147 are 1, 3, 7 and 21.

Out of these, 21 is the greatest common factor.

Thus, HCF of 63, 105 and 147 is 21.

(b) Factors of 18 are : 1, 2, 3, 6, 9, 18

Factors of 36 are : 1, 2, 3, 4, 6, 9, 12, 18, 36

Factors of 45 are : 1, 3, 5, 9, 15, 45

Common factors of 28, 36 and 45 are 1, 3 and 9.

Out of these, 9 is the greatest common factor.

Thus, HCF of 18, 36 and 45 is 9.

(c) Factors of 60 are : 1, 2, 3, 4, 6, 10, 15, 20, 30, 60

Factors of 100 are : 1, 2, 4, 5, 10, 10, 20, 25, 50, 100

Factors of 140 are : 1, 2, 4, 5, 7, 10, 14, 20, 28, 35, 70, 140

Common factors of 60, 100 and 140 are 1, 2, 4, 10 and 20.

Out of these, 20 is the greatest common factor.

Thus, HCF of 60, 100 and 140 is 20.

Exercise - 12.2

1. Find the LCM of the following numbers :

(a) The multiples of 8 are : 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96, ...

The multiples of 12 are : 12, 24, 36, 48, 60, 72, 84, 96, 108, 120, 132, ...

The common multiples of 8 and 12 are 24, 48, 72 .....

Out of these least common multiples is 24.

Thus, the LCM of 8 and 12 is 24.

(b) The multiples of 8 are : 8, 16, 24, 32, 40, 48, 56, 64, 72,

The multiples of 24 are : 24, 48, 72, 96, 120, 144, 168, 192, ...

The common multiples of 8 and 24 are 24, 48, 72, 96 .....

Out of these least common multiples is 24.

Thus, the LCM of 8 and 24 is 24.

(c) The multiples of 12 are : 12, 24, 36, 48, 60, 72, 84, 96, 108, 120, 132, 144, ...

The multiples of 18 are : 18, 36, 54, 72, 90, 108, 126, 144, 162, 180, 198, ...

The common multiples of 12 and 18 are 36, 72, 108, 144 ...

Out of these least common multiples is 36.

Thus, the LCM of 12 and 18 is 36.

(d) The multiples of 4 are : 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, ...

The multiples of 6 are : 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66 .....

Common multiples of 4 and 6 are 12, 24, 36 .....

out of these, least common multiple is 12.

Thus, the LCM of 4 and 6 is 12.

(e) The multiples of 4 are : 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48 .....

The multiples of 6 are : 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66 .....

The multiples of 8 are : 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, ...

Common multiples of 4, 6 and 8 are 24, 48 .....

Out of these, least common multiple is 24.

Thus, the LCM of 4, 6 and 8 is 24.

(f) The multiples of 8 are : 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96, 104, 112, 120, ...

The multiples of 12 are : 12, 24, 36, 48, 72, 84, 96, 108, 120, 132, 144 .....

The multiples of 15 are : 15, 30, 45, 60, 75, 90, 105, 120, 135, 150, 150, 165, ...

Common multiples of 8, 12 and 15 are 120 .....

Out of these, least common multiple is 120.

Thus, the LCM of 8, 12 and 15 is 120.

(g) The multiples of 10 are : 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, ...

The multiples of 12 are : 12, 24, 36, 48, 72, 84, 96, 108, 120, 132, ...

The multiples of 15 are : 15, 30, 45, 60, 75, 90, 105, 120, 135, 150, 150, 165, 180, ...

Common multiples of 10, 12 and 15 are 60, 120 .....

Out of these, least common multiple is 60.

Thus, the LCM of 10, 12 and 15 is 60.

(h) The multiples of 6 are : 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90 .....

The multiples of 9 are : 9, 18, 27, 36, 45, 54, 63, 72, 81, 90, 99 .....

The multiples of 15 are : 15, 30, 45, 60, 75, 90, 105, 120, 135, 150, 150 .....

Common multiples of 6, 9 and 15 are 90 .....

Out of these, least common multiple is 90.

Thus, the LCM of 6, 9 and 15 is 90.

2. Find the LCM of the following numbers by prime factorization method :

(a) Resolving each of the given numbers into prime factors, we get ;

2	60
2	30
3	15
5	5
	1

3	75
5	25
5	5
	1

$\therefore 60 = 2 \times 2 \times 3 \times 5 = 2^2 \times 3 \times 5$ and $75 = 3 \times 5 \times 5 = 3 \times 5^2$

$\therefore$ LCM of 60 and 75 = Product of terms containing highest power of 2, 3, and 5

$= 2^2 \times 3 \times 5^2 = 2 \times 2 \times 3 \times 5 \times 5 = 300$

(b) Resolving each of the given numbers into prime factors, we get;

2	36
2	18
3	9
3	3
	1

2	64
2	32
3	16
2	8
2	4
2	2
	1

$\therefore 36 = 2 \times 2 \times 3 \times 3 = 2^2 \times 3^2$ and $64 = 2 \times 2 \times 2 \times 2 \times 2 = 2^5$

$\therefore$ LCM of 36 and 64 = Product of terms containing highest power of 2 and 3.

$= 2^5 \times 3^2 = 32 \times 9 = 288$

(c) Resolving each of the given numbers into prime factors, we get;

2	72
2	36
2	18
3	9
3	3
	1

2	90
3	45
3	15
5	5
	1

$\therefore 72 = 2 \times 2 \times 2 \times 3 \times 3 = 2^3 \times 3^2$

and $90 = 2 \times 3 \times 3 \times 5 = 2 \times 3^5 \times 5$

$\therefore$ LCM of 72 and 90 = Product of terms containing highest power of 2, 3 and 5.

$= 2^3 \times 3^2 \times 5 = 8 \times 9 \times 5 = 360$

(c) Resolving each of the given numbers into prime factors, we get;

3	75
5	25
5	5
	1

2	100
2	50
5	25
5	5
	1

$\therefore 75 = 3 \times 5 \times 5 = 3 \times 5^2$ and $100 = 2 \times 2 \times 5 \times 5 = 2^2 \times 5^2$

$\therefore$ LCM of 75 and 100 = Product of terms containing highest power of 2, 3 and 5.

$= 2^2 \times 3 \times 5^2 = 4 \times 3 \times 25 = 300$

(e) Resolving each of the given numbers into prime factors, we get;

2	16
2	8
2	4
2	2
	1

2	36
2	18
3	9
3	3
	1

3	45
3	15
5	5
	1

$\therefore 16 = 2 \times 2 \times 2 \times 2 = 2^4$, $36 = 2 \times 2 \times 3 \times 3 = 2^2 \times 3^2$

and $45 = 3 \times 3 \times 5 = 3^5 \times 5$

$\therefore$ LCM of 16, 36 and 45 = Product of terms containing highest power of 2, 3 and 5.

$= 2^4 \times 3^2 \times 5 = 16 \times 9 \times 5 = 720$

(f) Resolving each of the given numbers into prime factors, we get;

2	42
3	21
7	7
	1

2	70
5	35
7	7
	1

7	91
13	13
	1

$\therefore 42 = 2 \times 3 \times 7$, $70 = 2 \times 5 \times 7$ and $91 = 7 \times 13$

$\therefore$ LCM of 42, 70 and 91 = Product of terms containing highest power of 2, 3, 5, 7 and 13.

$= 2 \times 3 \times 5 \times 7 \times 13 = 2730$

Exercise - 11.4

1. Compare each pair given below using ">" or "<" or "=" :

(a) >, (b) >, (c) <, (d) >, (e) <, (f) >,

(g) >, (h) <, (i) >, (j) <, (k) <, (l) <.

2. (a) The given fractions $\frac{3}{8}, \frac{5}{9}, \frac{2}{4}, \frac{1}{3}$ and $\frac{7}{8}$ are unlike fractions. Let us convert into like fractions. Four this we find the LCM of denominators.

LCM of 8, 9, 4, 3 and 8 is 72.

Now, we make the denominators of given fractions 72

$\frac{3}{8} = \frac{3\times9}{8\times9} = \frac{27}{72}, \frac{5}{9} = \frac{5\times8}{9\times8} = \frac{40}{72}, \frac{2}{4} = \frac{2\times18}{4\times18} = \frac{36}{72},$

$\frac{1}{3} = \frac{1\times24}{3\times24} = \frac{24}{72}$ and $\frac{7}{8} = \frac{7\times9}{8\times9} = \frac{63}{72}.$

Now, comparing the numerators of the above formed like fractions,

$\because 24 < 27 < 36 < 40 < 63$

$\therefore \frac{24}{72} < \frac{27}{72} < \frac{36}{72} < \frac{40}{72} < \frac{63}{72}$

Thus, $\frac{1}{3}, \frac{3}{8}, \frac{2}{4}, \frac{5}{9}$ and $\frac{7}{8}$ is the required ascending order.

(b) The given fractions are unlike fractions.

Let us convert given fractions into like fractions

LCM of 15, 15, 2 and 10 is 30.

$\frac{4}{15} = \frac{4\times2}{15\times2} = \frac{8}{30}, \frac{3}{15} = \frac{3\times2}{15\times2} = \frac{6}{30}, \frac{1}{2} = \frac{1\times15}{2\times15} = \frac{15}{30}$

and $\frac{9}{10} = \frac{9\times3}{10\times3} = \frac{27}{30}$

Now, compare the numerators of the above formed like fractions.

$\because 6 < 8 < 15 < 27$

$\therefore \frac{6}{30} < \frac{8}{30} < \frac{15}{30} < \frac{27}{30}$ or $\frac{3}{15} < \frac{4}{15} < \frac{1}{2} < \frac{9}{10}$

Hence, $\frac{3}{15}, \frac{4}{15}, \frac{1}{2}$ and $\frac{9}{10}$ is the required ascending order.

(c) The given fractions are unlike fractions.

Let us convert given fraction into like fractions.

LCM of 4, 8, 12, 16 is 48

$$\frac{5}{4} = \frac{5\times12}{4\times12} = \frac{60}{48}, \frac{5}{8} = \frac{5\times6}{8\times6} = \frac{30}{48}, \frac{5}{12} = \frac{5\times4}{12\times4} = \frac{20}{48}$$

and $\frac{5}{16} = \frac{5\times3}{16\times3} = \frac{15}{48}$

Now, compare the numerators of the above formed like fractions.

$\because 15 < 20 < 30 < 60.$

$\therefore \frac{15}{48} < \frac{20}{48} < \frac{30}{48} < \frac{60}{48}$ or $\frac{5}{16} < \frac{5}{12} < \frac{5}{8} < \frac{5}{4}$

Hence, $\frac{5}{16}, \frac{5}{12}, \frac{5}{8}$ and $\frac{5}{4}$ is the required ascending order.

(d) The given fraction are unlike fractions.

Let us convert given fractions into like fractions.

LCM of 8, 15, 16 and 12 is 240.

$$\frac{7}{8} = \frac{7\times30}{8\times30} = \frac{210}{240}, \frac{7}{15} = \frac{7\times16}{15\times16} = \frac{112}{240}, \frac{7}{16} = \frac{7\times15}{16\times15} = \frac{105}{240},$$

$$\frac{7}{12} = \frac{7\times20}{12\times20} = \frac{140}{240}$$

$\because 105 < 112 < 140 < 210$

$\therefore \frac{105}{240} < \frac{112}{240} < \frac{140}{240} < \frac{210}{240}$ or $\frac{7}{16} < \frac{7}{15} < \frac{7}{12} < \frac{7}{8}$

Hence, $\frac{7}{16}, \frac{7}{15}, \frac{7}{12}$ and $\frac{7}{8}$ is the required ascending order.

(e) The given fraction are unlike fractions.

Let us convert given fractions into like fractions.

LCM of 9, 10, 3 and 15 is 90.

$$\frac{5}{9} = \frac{5\times10}{9\times10} = \frac{50}{90}, \frac{3}{10} = \frac{3\times9}{10\times9} = \frac{27}{90}, \frac{1}{3} = \frac{1\times30}{3\times30} = \frac{30}{90}$$

and $\frac{4}{15} = \frac{4\times6}{15\times6} = \frac{24}{90}$

$\because 24 < 27 < 30 < 50$

$\therefore \frac{24}{90} < \frac{27}{90} < \frac{30}{90} < \frac{50}{90}$ or $\frac{4}{15} < \frac{3}{10} < \frac{1}{3} < \frac{5}{9}$

Hence, $\frac{4}{15}, \frac{3}{10}, \frac{1}{3}$ and $\frac{5}{9}$ is the required ascending order.

(f) The given fraction are unlike fractions.

Let us convert given fractions into like fractions.

LCM of 8, 16, 18 and 4 is 144.

$$\frac{3}{8} = \frac{3\times18}{8\times18} = \frac{54}{144}, \frac{1}{16} = \frac{1\times9}{16\times9} = \frac{9}{144}, \frac{5}{18} = \frac{5\times8}{18\times8} = \frac{40}{144}$$

and $\frac{7}{4} = \frac{7\times35}{4\times36} = \frac{254}{144}$

$\because 9 < 40 < 54 < 252$

$\therefore \frac{9}{144} < \frac{40}{144} < \frac{54}{144} < \frac{252}{144}$ or $\frac{1}{16} < \frac{5}{18} < \frac{3}{8} < \frac{7}{4}$

Hence, $\frac{1}{16}, \frac{5}{18}, \frac{3}{8}$ and $\frac{7}{4}$ is the required ascending order.

3. Arrange the following fractions in descending order :

(a) The given fractions $\frac{7}{9}, \frac{3}{9}, \frac{1}{9}, \frac{5}{9}$ and $\frac{2}{9}$ are like fractions.

Now, we compare numerator of the above like fractions.

$\because 7 > 5 > 3 > 2 > 1$

$\therefore \frac{7}{9} > \frac{5}{9} > \frac{3}{9} > \frac{2}{9} > \frac{1}{9}$

Thus, $\frac{7}{9}, \frac{5}{9}, \frac{3}{9}, \frac{2}{9}$ and $\frac{1}{9}$ is the required descending order.

(b) The given fractions $\frac{13}{30}, \frac{9}{30}, \frac{11}{30}, \frac{17}{30}$ and $\frac{15}{30}$ are like fractions.

Now, we compare numerator of the above like fractions.

$\because 17 > 15 > 13 > 11 > 9$

$\therefore \frac{17}{30} > \frac{15}{30} > \frac{13}{30} > \frac{11}{30} > \frac{9}{30}$

Thus, $\frac{17}{30}, \frac{15}{30}, \frac{13}{30}, \frac{11}{30}$ and $\frac{9}{30}$ is the required descending order.

(c) $\frac{8}{15}, \frac{2}{15}, \frac{14}{15}, \frac{7}{15}$ and $\frac{1}{15}$ are like fractions.

Now, we compare numerator of the above like fractions.

$\because 14 > 8 > 7 > 2 > 1$

$\therefore \frac{14}{15} > \frac{8}{15} > \frac{7}{15} > \frac{2}{15} > \frac{1}{15}$

Thus, $\frac{14}{15}, \frac{8}{15}, \frac{7}{15}, \frac{2}{15}$ and $\frac{1}{15}$ is the required descending order.

(d) $\frac{12}{17}, \frac{11}{17}, \frac{9}{17}, \frac{16}{17}$ and $\frac{8}{17}$ are like fractions.

Now, we compare numerator of the above like fractions.

$\because 16 > 12 > 11 > 9 > 8$

$\therefore \frac{16}{17} > \frac{12}{17} > \frac{11}{17} > \frac{9}{17} > \frac{8}{17}$

Thus, $\frac{16}{17}, \frac{12}{17}, \frac{11}{17}, \frac{9}{17}$ and $\frac{8}{17}$ is the required descending order.

(e) $\frac{3}{8}, \frac{3}{5}, \frac{3}{6}$ and $\frac{3}{4}$ are unlike fractions.

LCM of 8, 5, 6, and 4 is 120.

$\therefore \frac{3}{8} = \frac{3\times15}{8\times15} = \frac{45}{120}, \frac{3}{5} = \frac{3\times24}{5\times24} = \frac{72}{120}, \frac{3}{6} = \frac{3\times20}{6\times20} = \frac{60}{120}$

and $\frac{3}{4} = \frac{3\times30}{4\times30} = \frac{90}{120}$

Now, we compare numerator of the above formed like fractions.

$\because 90 > 72 > 60 > 45$

$\therefore \frac{90}{120} > \frac{72}{120} > \frac{60}{120} > \frac{45}{120}$ or $\frac{3}{4} > \frac{3}{5} > \frac{3}{6} > \frac{3}{8}$

Thus, $\frac{3}{4}, \frac{3}{5}, \frac{3}{6}$ and $\frac{3}{8}$ is the required descending order.

(f) $\frac{1}{4}, \frac{1}{2}, \frac{1}{8}$ and $\frac{3}{7}$ are unlike fractions.

LCM of 4, 2, 8, and 7 is 56.

$\therefore \frac{1}{4} = \frac{1\times4}{4\times4} = \frac{14}{56}, \frac{1}{2} = \frac{1\times28}{2\times28} = \frac{28}{56}, \frac{1}{8} = \frac{1\times7}{8\times7} = \frac{7}{56}$

and $\frac{3}{7} = \frac{3\times8}{7\times8} = \frac{24}{56}$

Now, we compare numerator of the above formed like fractions.

$\because 28 > 24 > 14 > 7$

$\therefore \frac{28}{56} > \frac{24}{56} > \frac{14}{56} > \frac{7}{56}$ or $\frac{1}{2} > \frac{3}{7} > \frac{1}{4} > \frac{1}{8}$

Thus, $\frac{1}{2}, \frac{3}{7}, \frac{1}{4}$ and $\frac{1}{8}$ is the required descending order.

Exercise - 11.5

1. Find the equivalent fractions in each of the following with lowest common denominator :

(a) $\frac{3}{4}$ and $\frac{7}{8}$ are unlike fractions.

LCM of 4 and 8 is 8.

$\therefore \frac{3}{4} = \frac{3\times2}{4\times2} = \frac{6}{8}$ and $\frac{7\times1}{8\times1} = \frac{7}{8}$

Hence, equivalent fractions we $\frac{6}{8}$ and $\frac{7}{8}$.

(b) $\frac{5}{8}$ and $\frac{2}{9}$ are unlike fractions.

LCM of 8 and 9 is 72.

$$\therefore \frac{5}{8} = \frac{5\times9}{8\times9} = \frac{45}{72} \text{ and } \frac{2}{9} = \frac{2\times8}{9\times8} = \frac{16}{72}$$

Hence, equivalent fractions are $\frac{45}{72}$ and $\frac{16}{72}$.

(c) $\frac{4}{9}$ and $\frac{7}{12}$ are unlike fractions.

LCM of 9 and 12 is 36.

$$\therefore \frac{4}{9} = \frac{4\times4}{9\times4} = \frac{16}{36} \text{ and } \frac{7}{12} = \frac{7\times3}{12\times3} = \frac{21}{36}$$

Hence, equivalent fractions are $\frac{16}{36}$ and $\frac{21}{36}$.

(d) $\frac{8}{35}$ and $\frac{6}{14}$ are unlike fractions.

LCM of 35 and 14 is 70.

$$\therefore \frac{8}{35} = \frac{8\times2}{35\times2} = \frac{16}{70} \text{ and } \frac{6}{14} = \frac{6\times5}{14\times5} = \frac{30}{70}$$

Hence, equivalent fractions are $\frac{16}{70}$ and $\frac{30}{70}$.

2. Add :

(a) $\frac{2}{3} + \frac{4}{7} = \frac{2\times7}{3\times7} + \frac{4\times3}{7\times3}$ (LCM of 3 and 7 is 21)

$$= \frac{14}{21} + \frac{12}{21}$$

$$= \frac{14+12}{21} = \frac{26}{21}$$

(b) $\frac{4}{5} + \frac{3}{7} = \frac{4\times7}{5\times7} + \frac{3\times5}{7\times5}$ (LCM of 4 and 6 is 12)

$$= \frac{9}{12} + \frac{2}{12}$$

$$= \frac{9+2}{12} = \frac{11}{12}$$

(c) $\frac{3}{4} + \frac{1}{6} = \frac{3\times3}{4\times3} + \frac{1\times2}{6\times2}$ (LCM of 3 and 7 is 21)

$$= \frac{9}{12} + \frac{2}{12}$$

$$= \frac{9+2}{12} = \frac{11}{12}$$

(d) $\frac{3}{5} + \frac{2}{7} = \frac{3\times7}{5\times7} + \frac{2\times5}{7\times5}$ (LCM of 5 and 7 is 35)

$$= \frac{21}{35} + \frac{10}{35}$$

$$= \frac{21+10}{35} = \frac{31}{35}$$

(e) $\frac{2}{10} + \frac{3}{5} = \frac{2\times1}{10\times1} + \frac{3\times2}{5\times2}$ (LCM of 5 and 10 is 10)

$$= \frac{2}{10} + \frac{6}{10}$$

$$= \frac{2+6}{10} = \frac{8}{10}$$

(f) $\frac{3}{10} + \frac{2}{25} = \frac{3\times5}{10\times5} + \frac{2\times2}{25\times2}$ (LCM of 10 and 25 is 50)

$$= \frac{15}{50} + \frac{4}{50}$$

$$= \frac{15+4}{50} = \frac{19}{50}$$

(g) $\frac{8}{10} + \frac{2}{3} = \frac{8\times3}{10\times3} = \frac{2\times10}{3\times10}$ (LCM of 10 and 3 is 30)

$$= \frac{24}{30} + \frac{20}{30}$$

$$= \frac{24+20}{30} = \frac{44}{30}$$

(h) $\frac{3}{11} + \frac{1}{5} = \frac{3\times5}{11\times5} + \frac{1\times11}{5\times11}$ (LCM of 11 and 5 is 55)

$$= \frac{15}{55} + \frac{11}{55}$$

$$= \frac{15+11}{55} = \frac{26}{55}$$

3. Find the sum :

(a) $\frac{2}{3} + \frac{4}{5} + \frac{1}{2} = \frac{2\times10}{3\times10} + \frac{4\times6}{5\times6} + \frac{1\times15}{2\times15}$ (LCM of 3, 5 and 2 is 30)

$$= \frac{20}{30} + \frac{24}{30} + \frac{15}{30}$$

$$= \frac{20+24+15}{30}$$

$$= \frac{59}{30}$$

(b) $\frac{7}{10} + \frac{8}{15} + \frac{3}{6} = \frac{7\times3}{10\times3} + \frac{7\times2}{15\times2} + \frac{3\times6}{5\times6}$ (LCM of 10, 15 and 5 is 30)

$$= \frac{21}{30} + \frac{16}{30} + \frac{18}{30}$$

$$= \frac{21+16+18}{30}$$

$$= \frac{55}{30} = \frac{11}{6}$$

(c) $\frac{5}{8} + \frac{9}{16} + \frac{13}{24} = \frac{5\times6}{8\times6} + \frac{9\times3}{16\times3} + \frac{13\times2}{24\times2}$ (LCM of 8, 16 and 24 is 48)

$$= \frac{30}{48} + \frac{27}{48} + \frac{26}{48}$$

$$= \frac{30+27+26}{48}$$

$$= \frac{83}{48}$$

(d) $\frac{3}{4} + \frac{5}{12} + \frac{7}{8} = \frac{3\times6}{4\times6} + \frac{5\times2}{12\times2} + \frac{7\times3}{8\times3}$ (LCM of 4, 12 and 8 is 24)

$$= \frac{18}{24} + \frac{10}{24} + \frac{21}{24}$$

$$= \frac{18+10+21}{24} = \frac{49}{24}$$

(e) $\frac{13}{50}+\frac{9}{10}+\frac{8}{20}=\frac{13\times 2}{50\times 2}+\frac{9\times 10}{10\times 10}+\frac{8\times 5}{20\times 5}$ (LCM of 50, 10 and 20 is 100)

$$=\frac{26}{100}+\frac{90}{100}+\frac{40}{100}$$

$$=\frac{26+90+40}{100}$$

$$=\frac{156}{100}=\frac{39}{25}$$

(f) $\frac{3}{4}+\frac{2}{3}+\frac{23}{24}=\frac{3\times 6}{4\times 6}+\frac{2\times 8}{3\times 8}+\frac{23\times 1}{24\times 1}$ (LCM of 4, 3 and 24 is 24)

$$=\frac{18}{24}+\frac{16}{24}+\frac{23}{24}$$

$$=\frac{18+16+23}{24}$$

$$=\frac{57}{24}$$

(g) $\frac{5}{6}+\frac{1}{4}+\frac{2}{5}=\frac{5\times 10}{6\times 10}+\frac{1\times 15}{4\times 15}+\frac{2\times 12}{5\times 12}$ (LCM of 6, 4 and 5 is 60)

$$=\frac{50}{60}+\frac{15}{60}+\frac{24}{60}$$

$$=\frac{50+15+24}{60}$$

$$=\frac{89}{60}$$

(h) $\frac{5}{7}+\frac{6}{1}+\frac{12}{21}=\frac{5\times 3}{7\times 3}+\frac{6\times 21}{1\times 21}+\frac{12\times 1}{21\times 1}$ (LCM of 7, 1 and 21 is 21)

$$=\frac{15}{21}+\frac{126}{21}+\frac{12}{21}$$

$$=\frac{15+126+12}{21}$$

$$=\frac{153}{21}=\frac{51}{7}$$

(i) $\frac{2}{3}+\frac{6}{7}+\frac{11}{28}=\frac{2\times28}{3\times28}+\frac{6\times12}{7\times12}+\frac{11\times3}{28\times3}$ (LCM of 3, 7 and 28 is 84)

$$=\frac{56}{84}+\frac{72}{84}+\frac{33}{84}$$

$$=\frac{56+72+33}{84}$$

$$=\frac{161}{84}=\frac{23}{12}$$

(j) $\frac{7}{1}+\frac{7}{6}+\frac{5}{14}=\frac{7\times42}{1\times42}+\frac{7\times7}{6\times7}+\frac{5\times3}{14\times3}$ (LCM of 1, 6 and 14 is 42)

$$=\frac{294}{42}+\frac{49}{42}+\frac{15}{42}$$

$$=\frac{294+49+15}{42}$$

$$=\frac{358}{42}=\frac{179}{21}$$

(k) $\frac{2}{3}+\frac{4}{5}+\frac{1}{6}=\frac{2\times10}{3\times10}+\frac{4\times6}{5\times6}+\frac{1\times5}{6\times5}$ (LCM of 3, 5 and 6 is 30)

$$=\frac{20}{30}+\frac{24}{30}+\frac{5}{30}$$

$$=\frac{20+24+5}{30}$$

$$=\frac{49}{30}$$

(l) $\frac{7}{1}+\frac{2}{5}+\frac{3}{4}=\frac{7\times20}{1\times20}+\frac{2\times4}{5\times4}+\frac{3\times5}{4\times5}$ (LCM of 1, 5 and 4 is 20)

$$=\frac{140}{20}+\frac{8}{20}+\frac{15}{20}$$

$$=\frac{140+8+15}{20}$$

$$=\frac{163}{20}$$

Exercise - 11.6

1. Solve :

(a) $\frac{5}{7} - \frac{6}{11} = \frac{5\times11}{7\times11} - \frac{6\times7}{11\times7}$ (LCM of 7 and 11 is 77)

$= \frac{55}{77} - \frac{42}{77}$

$= \frac{55-42}{77}$

$= \frac{13}{77}$

(b) $\frac{3}{13} - \frac{1}{4} = \frac{6\times4}{13\times4} - \frac{1\times13}{4\times13}$ (LCM of 13 and 4 is 52)

$= \frac{24}{52} - \frac{13}{52}$

$= \frac{24-13}{52}$

$= \frac{11}{56}$

(c) $\frac{3}{7} - \frac{5}{12} = \frac{3\times12}{7\times12} - \frac{5\times7}{12\times7}$ (LCM of 7 and 12 is 84)

$= \frac{36}{84} - \frac{35}{84}$

$= \frac{36-35}{84}$

$= \frac{1}{84}$

(d) $\frac{21}{28} - \frac{1}{4} = \frac{21\times1}{28\times1} - \frac{1\times7}{4\times7}$ (LCM of 28 and 4 is 28)

$= \frac{21}{28} - \frac{7}{28}$

$= \frac{21-7}{28}$

$$= \frac{14}{28} = \frac{1}{2}$$

(e) $$\frac{1}{1} - \frac{5}{12} = \frac{1\times12}{1\times12} - \frac{5\times1}{12\times1} \quad \text{(LCM of 1 and 12 is 12)}$$

$$= \frac{12}{12} - \frac{5}{12}$$

$$= \frac{12-5}{12} = \frac{7}{12}$$

(f) $$\frac{4}{1} - \frac{6}{10} = \frac{4\times10}{1\times10} - \frac{6\times1}{10\times1} \quad \text{(LCM of 1 and 10 is 10)}$$

$$= \frac{40}{10} - \frac{6}{10}$$

$$= \frac{40-6}{10}$$

$$= \frac{34}{10} = \frac{17}{5}$$

2. Subtract :

(a) LCM of 5 and 9 is 45

So, we change the given fractions to equivalent fractions with 45 as denominator.

$$\frac{2}{5} = \frac{2\times9}{5\times9} = \frac{18}{45} \text{ and } \frac{4}{9} = \frac{4\times5}{9\times5} = \frac{20}{45}$$

Now, $$\frac{4}{9} - \frac{2}{5} = \frac{20}{45} - \frac{18}{45}$$

$$= \frac{20-18}{45}$$

$$= \frac{2}{45}$$

(b) LCM of 20 and 15 is 60.

$$\therefore \frac{7}{20} = \frac{7\times3}{20\times3} = \frac{21}{60} \text{ and } \frac{9}{15} = \frac{9\times4}{15\times4} = \frac{36}{60}$$

Now, $\frac{9}{15} - \frac{7}{20} = \frac{36}{60} - \frac{21}{60}$

$= \frac{36-21}{60}$

$= \frac{15}{60} = \frac{1}{4}$

(c) LCM of 12 and 8 is 24.

$\therefore \frac{5}{12} = \frac{5\times2}{12\times2} = \frac{10}{24}$ and $\frac{7}{8} = \frac{7\times3}{8\times3} = \frac{21}{24}$

Now, $\frac{7}{8} - \frac{5}{12} = \frac{21}{24} - \frac{10}{24}$

$= \frac{21-10}{24} = \frac{11}{24}$

(d) LCM of 8 and 9 is 72.

$\therefore \frac{3}{8} = \frac{3\times9}{8\times9} = \frac{27}{72}$ and $\frac{5}{9} = \frac{5\times8}{9\times8} = \frac{40}{72}$

Now, $\frac{5}{9} - \frac{3}{8} = \frac{40}{72} - \frac{27}{72}$

$= \frac{40-27}{72} = \frac{13}{72}$

(e) LCM of 42 and 24 is 168.

$\therefore \frac{1}{42} = \frac{1\times4}{42\times4} = \frac{4}{168}$ and $\frac{1}{24} = \frac{1\times7}{24\times7} = \frac{7}{168}$

Now, $\frac{1}{24} - \frac{1}{42} = \frac{7}{168} - \frac{4}{168}$

$= \frac{7-4}{168}$

$= \frac{3}{168} = \frac{1}{56}$

(f) LCM of 13 and 10 is 13.

$$\therefore \quad \frac{4}{13} = \frac{4\times1}{13\times1} = \frac{4}{13} \text{ and } \frac{2}{1} = \frac{2\times13}{1\times13} = \frac{26}{13}$$

Now, $\frac{2}{1} - \frac{4}{13} = \frac{26}{13} - \frac{4}{13}$

$$= \frac{26-4}{13}$$

$$= \frac{22}{13}$$

3. Find the difference between :

(a) LCM of 4 and 5 is 20.

So, we change the fractions to equivalent fractions with 20 as denominator.

Now, $\frac{5}{4} = \frac{5\times5}{4\times5} = \frac{25}{20}$ and $\frac{4}{5} = \frac{4\times4}{5\times4} = \frac{16}{20}$

Since, $25 > 16$, So $\frac{25}{20} > \frac{16}{20}$

$$\therefore \quad \frac{25}{20} - \frac{16}{20} = \frac{25-16}{20}$$

$$= \frac{9}{20}$$

(b) LCM of 6 and 7 is 42.

So, we change the fractions to equivalent fractions with 42 as denominator.

Now, $\frac{5}{6} = \frac{5\times7}{6\times7} = \frac{35}{42}$ and $\frac{6}{7} = \frac{6\times6}{7\times6} = \frac{36}{42}$

Since, $36 > 35$, So $\frac{36}{42} > \frac{35}{42}$

$$\therefore \frac{36}{42} - \frac{35}{42} = \frac{36-35}{42}$$

$$= \frac{1}{42}$$

(c) LCM of 3 and 7 is 21.

So, we change the fractions to equivalent fractions with 21 as denominator.

Now, $\frac{2}{3} = \frac{2\times7}{3\times7} = \frac{14}{21}$ and $\frac{4}{7} = \frac{4\times3}{7\times3} = \frac{12}{21}$

Since, $14 > 12$, So $\frac{14}{21} > \frac{12}{21}$

$$\therefore \frac{14}{21} - \frac{12}{21} = \frac{14-12}{21}$$

$$= \frac{2}{21}$$

(d) LCM of 7 and 21 is 21.

So, we change the fractions to equivalent fractions with 21 as denominator.

Now, $\frac{2}{7} = \frac{2\times3}{7\times3} = \frac{6}{21}$ and $\frac{4}{21} = \frac{4\times1}{21\times1} = \frac{4}{21}$

Since, $6 > 4$, So $\frac{6}{21} > \frac{4}{21}$

$$\therefore \frac{6}{21} - \frac{4}{21} = \frac{6-4}{21} = \frac{2}{21}$$

(e) LCM of 4 and 13 is 52.

So, we change the fractions to equivalent fractions with 52 as denominator.

Now, $\frac{1}{4} = \frac{1\times13}{4\times13} = \frac{13}{52}$ and $\frac{3}{13} = \frac{3\times4}{13\times4} = \frac{12}{52}$

Since, $13 > 12$, So $\frac{13}{52} > \frac{12}{52}$

$$\therefore \frac{13}{52} - \frac{12}{52} = \frac{13-12}{52}$$

$$= \frac{1}{52}$$

(f) LCM of 18 and 15 is 90.

So, we change the fractions to equivalent fractions with 90 as denominator.

Now, $\frac{5}{18} = \frac{5\times5}{18\times5} = \frac{25}{90}$ and $\frac{4}{15} = \frac{4\times6}{15\times6} = \frac{24}{90}$

Since, $25 > 24$, So $\frac{25}{90} > \frac{24}{90}$

$\therefore \frac{25}{90} - \frac{24}{90} = \frac{25-24}{90} = \frac{1}{90}$

(g) LCM of 9 and 25 is 225.

So, we change the fractions to equivalent fractions with 225 as denominator.

Now, $\frac{4}{9} = \frac{4\times25}{9\times25} = \frac{100}{225}$ and $\frac{7}{25} = \frac{7\times9}{25\times9} = \frac{63}{225}$

Since, $100 > 63$, So $\frac{100}{225} > \frac{63}{225}$

$\therefore \frac{100}{225} - \frac{63}{225} = \frac{100-63}{225}$

$= \frac{37}{225}$

(h) LCM of 1 and 12 is 12.

So, we change the fractions to equivalent fractions with 12 as denominator.

Now, $\frac{4}{1} = \frac{4\times12}{1\times12} = \frac{48}{12}$ and $\frac{23}{12} = \frac{23\times1}{12\times1} = \frac{23}{12}$

Since, $48 > 23$, So $\frac{48}{12} > \frac{23}{12}$

$\therefore \frac{48}{12} - \frac{23}{12} = \frac{48-23}{12}$

$= \frac{25}{12}$

(i) LCM of 22 and 18 is 198.

So, we change the fractions to equivalent fractions with 198 as denominator.

Now, $\frac{15}{22} = \frac{15 \times 9}{22 \times 9} = \frac{135}{198}$ and $\frac{7}{18} = \frac{7 \times 1}{18 \times 1} = \frac{77}{198}$

Since, $100 > 63$, So $\frac{135}{198} > \frac{77}{198}$

$$\therefore \frac{135}{198} - \frac{77}{198} = \frac{135 - 77}{198}$$

$$= \frac{58}{198} = \frac{29}{99}$$