1. Let us Revise

Exercise 1.1

1. (a) 99,999 (b) 99,001 (c) 49,999 (d) 1,00,000

2. (a) Seventy-five thousand five hundred seventy-nine.
(b) Thirty thousand.
(c) Four lakh ten thousand eight hundred.
(d) Three lakh fifty-nine thousand six hundred eighty.
(e) One lakh fifty thousand one hundred forty-six.

3. (a) Six hundred thousand three hundred fifty.
(b) Four hundred fifty thousand one hundred fifty-two.
(c) Three million nine hundred eleven thousand six hundred.
(d) Six million thirty-seven thousand seven.
(e) Eight million.

4. (a) 55,435 (b) 79,660 (c) 1,00,000 (d) 3,10,527 (e) 9,00,004

5. (a) 53,000; 53,376; 53,594; 54,465
(b) 18,900; 37,103; 41,905; 41,967

6. (a) 4,87,399 = 4,00,000 + 80,000 + 7,000 + 300 + 90 + 9
(b) 2,12,367 = 2,00,000 + 10,000 + 2,000 + 300 + 60 + 7

7. (a) 26 = XXVI (b) 38 = XXXVIII (c) 49 = XLIX
(d) 98 = XCVIII (e) 25 = XXV

8. (a) $\frac{3}{5}+\frac{7}{10}=\frac{6+7}{10}=\frac{13}{10}$

(b) $8\frac{1}{7}+2\frac{3}{5}=\frac{57}{7}+\frac{13}{5}=\frac{285+91}{35}=\frac{376}{35}$

(c) $3\frac{1}{2}-1\frac{2}{3}=\frac{7}{2}-\frac{5}{3}=\frac{21-10}{6}=\frac{11}{6}$

(d) $5\frac{2}{6}+3\frac{1}{6}-8=\frac{32}{6}+\frac{19}{6}-8=\frac{32+19-48}{6}=\frac{51-48}{6}=\frac{3}{6}=\frac{1}{2}$

9. (a)

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

(b)

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

(c)

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

(d)

$$\begin{array}{r} 27.8 \\ 25\overline{)695} \\ -\,50 \\ \hline 195 \\ -175 \\ \hline 200 \\ -200 \\ \hline \times \end{array}$$

10. (a) $18 = 2 \times 3 \times 3$

$12 = 2 \times 2 \times 3$

H.C.F. of 18 and 12

$= 2 \times 3$

$= 6$

2	18
3	9
3	3
	1

2	12
2	6
3	3
	1

(b) $24 = 2 \times 2 \times 2 \times 3$

$16 = 2 \times 2 \times 2 \times 2$

H.C.F. of 24 and 16

$= 2 \times 2 \times 2$

$= 8$

2	24
2	12
2	6
3	3
	1

2	16
2	8
2	4
2	2
	1

(c) $36 = 2 \times 2 \times 3 \times 3$

$46 = 2 \times 23$

H.C.F. of 36 and 46

$= 2$

2	36
2	18
3	9
3	3
	1

2	46
23	23
	1

(d) $60 = 2 \times 2 \times 3 \times 5$

$40 = 2 \times 2 \times 2 \times 5$

H.C.F. of 60 and 40

$= 2 \times 2 \times 5$

$= 20$

2	60
2	30
3	15
5	5
	1

2	40
2	20
2	10
5	5
	1

11. (a) Multiples of 8 = 8, 16 24, 32, 40

(b) Multiples of 12 = 12, 24, 36, 48, 60

12. No. of eggs produced by 1 hen = 160

No. of eggs produced by 39 hens $= 160 \times 39 = 6240$ eggs.

13. Time taken for the match = 8 hrs. 10 min.

$= 8 \times 60$ min + 10 min.

= 480 min + 10 min. = 490 mins.

14. ∵ Capacity of a tanker $= 500\,l$

∴ Volume of oil $= 255.630\,l$

∴ More oil which can be put into the tanker $= 500 - 255.630 = 244.37\,l$.

15. ∵ Weight of 1 cheese cube = 0.03 kg

∴ Weight of 25 cheese cubes $= 25 \times 0.03 = 0.75$ kg

∴ Weight of one box = 0.75 kg.

∵ The cost of weighing 0.75 kg = ₹ 48

$\therefore$ The cost of per kg $= 48 \div 0.75 = 48 \div \frac{75}{100}$

$= 48 \times \frac{100}{75} = 48 \times \frac{4}{3}$

$= 16 \times 4 = ₹\ 64$

16. Length of a blackboard = 300 cm.
Breadth of a blackboard = 140 cm.
Perimeter of the blackboard $= 2(l + b)$

$= 2(300 + 140)$

$= 2(440) = 880$ cm.

And area of the blackboard $= l \times b$

$= 300 \times 140 = 42000\ \text{cm}^2$.

17. The sum of 7.2 and 9.7 = 7.2 + 9.7 = 16.9
The difference between the sum and 8.11 = 16.9 – 8.11 = 8.79

2. Large Numbers

Exercise 2.1

1. (a) Eight lakh seventy-three thousand nine hundred ninety-one.
(b) Seventy-two lakh thirteen thousand five hundred thirty-five.
(c) Ninety lakh ten thousand one.
(d) One crore.
(e) Six crore ninety-seven lakh thirty-five thousand seven hundred eighty-seven.
(f) Eighty-eight crore ninety-nine lakh seventy-seven thousand six hundred sixty-six.

2. (a) Two million five hundred sixty-one thousand one.
(b) Four million three hundred fifty-three thousand four hundred five.
(c) Sixty-nine million six hundred thousand one hundred eighty.
(d) Seventy-nine million one hundred fifty-seven thousand two hundreds eighty seven.
(e) One hundred fifty-three million two hundred fifty-four thousand three hundred fifty-six.
(f) Two hundred fifty-six million five hundred forty-five thousand one hundred ninety-eight.

3. (a) 6,243,165 (b) 8,03,47,509 (c) 96,55,54,234 (d) 73,146,783
(e) 31,89,43,102 (f) 205,006,999

4. (a) 10 (b) 1 (c) 10 (d) 1

Exercise 2.2

1. (a) Place value of 1 in $9,36,125 = 1 \times 100 = 100$
(b) Place value of 4 in $46,90,37,111 = 4 \times 10,00,00,000 = 40,00,00,000$
(c) Place value of 0 in $5,69,31,075 = 0 \times 100 = 0$
(d) Place value of 6 in $7,06,59,318 = 6 \times 1,00,000 = 6,00,000$
(e) Place value of 5 in $6,06,25,321 = 5 \times 1,000 = 5,000$

2. Place value of $6 = 6 \times 10,00,00,000$ and $6 \times 1,00,000 = 60,00,00,000$ and 6,00,000
Place value of $9 = 9 \times 1,00,00,000$ and $9 \times 1 = 9,00,00,000$ and 9
Place value of $5 = 10,00,000$; $5 \times 1,000$ and $5 \times 10 = 50,00,000$; 5,000 and 50

Place value of = $3 \times 10{,}000 = 30{,}000$
Place value of $4 = 4 \times 100 = 400$

3. (a) 90,00,000 + 5,00,000 + 50,000 + 6,000 + 60 + 8
(b) 50,00,000 + 3,00,000 + 80,000 + 2,000 + 900 + 80 + 1
(c) 10,00,00,000 + 5,00,00,000 + 30,00,000 + 5,00,000 + 10,000 + 7,000 + 700 + 60 + 5
(d) 80,00,000 + 1,00,000 + 10,000 + 2,000 + 500 + 10 + 8
(e) 20,00,00,000 + 8,00,00,000 + 30,00,000 + 5,00,000 + 10,000 + 7,000 + 700 + 80
(f) 7,00,00,000 + 70,00,000 + 8,00,000 + 40,000 + 5,000 + 600 + 30 + 1

4. (a) 6,53,54,321 (b) 20,20,30,405 (c) 79,15,465
(d) 5,80,40,203 (e) 10,40,20,707 (f) 87,53,044

Exercise 2.3

1. (a) Predecesor of 6,79,54,370 = 6,79,54,369
(b) Predecessor of 15,256,897 = 15,256,896
(c) Predecessor of 37,561,200 = 37,561,199
(d) Predecessor of 81,71,61,395 = 81,71,61,394
(e) Predecessor of 100000 = 99999
(f) Predecessor of 999999 = 999998

2. (a) 9,75,412 > 9,57,412
(b) 85,621,717 > 85,621,716
(c) 4,756,215 < 4,756,315
(d) 7,99,899 < 7,99,998

3. (a) 11,15,006; 11,15,506; 11,51,006; 11,51,506
(b) 4,097,340; 4,973,304; 4,973,400; 4,973,403
(c) 22,14,15,112; 22,14,15,122; 22,14,15;211; 22,14,15,212
(d) 89,345,120; 89,435,120; 98,345,120; 98,543,120

4. (a) 63,600,879; 63,600,789; 63,060,789; 63,006,789
(b) 121,220,565; 5,123,565; 5,122,565; 5,121,565
(c) 14,82,35,989; 14,28,35,989; 14,28,35,988; 12,28,53,989
(d) 81,82,14,911; 81,82,14,712; 81,82,14,217; 81,82,14,119

Exercise 2.4

1. (a) The smallest no. of 6 digits = 1,03,457
The greatest no. of 6 digits = 7,54,310
(b) The smallest no. of 6 digits = 2,34,589
The greatest no. of 6 digits = 9,85,432

2. (a) The greatest 7-digit no. = 99,85,430
The smallest 7-digit no. = 3,00,45,89
(b) The greatest 7-digit no. = 88,76,321
The smallest 7-digit no. = 11,23,678

3. The smallest no. = 10,03,479
The greatest no. = 97,43,110

4. The smallest no. = 1,02,34,569
The greatest no. = 96,54,32,10

MCQ's

1. (c) **2.** (b) **3.** (b) **4.** (a) **5.** (b).

Work-Sheet

8,234,119	8,234,199	8,254,119	8,243,119	8,254,199
56,90,288	56,90,280	56,90,290	56,80,280	57,90,280
70,46,312	70,45,312	70,45,412	70,47,312	70,45,302
1,509,023	1,509,013	1,519,013	1,509,003	1,509,033
33,77,324	33,77,432	33,77,342	33,77,344	33,77,322
50,7,441	50,87,441	50,78,441	50,78,241	50,78,414
9,654,889	9,645,389	9,654,289	9,654,398	9,654,839

3. Roman Numerals

Exercise 3.1

1. (a) 9 = IX (b) 45 = XLV (c) 20 = XX
(d) 31 = XXXI (e) 11 = XI (f) 71 = LXXI

2. (a) VI = 6 (b) XXII = 22 (c) XL = 40
(d) LXXVI = 76 (e) XCV = 95 (f) XIV = 14

Exercise 3.2

1. (a) MCMXLI = 1941 (b) DLXXIX = 579 (c) MCDXX = 1420
(d) MCM = 1900 (e) CXCIX = 199 (f) MMCDX = 2410

2. (a) 2012 = MMXII (b) 1405 = MCDV (c) 3005 = MMMV
(d) 1971 = MCMLXXI (e) 1608 = MDCVIII (f) 2006 = MMVI

3. (a) VVV = ✗ (b) XI = ✓ (c) LLIV = ✗
(d) XM = ✗ (e) CCCL = ✓ (f) DDD = ✓

MCQ's

1. (b) **2.** (c) **3.** (c).

Worksheet

(II) (IV) (VII) (III) (V) (VIII)

4. Addition and Subtraction

Exercise 4.1

1. (a) 75,638 + 0 = 75,638
(b) 99,999 + 1 = 1,00,000
(c) 1,89,439 + 2,52,715 = 2,52,715 + 1,89,439
(d) 0 + 975,631 = 975,631
(e) 121541 + (70000 + 89604) = (89604 + 121541) + 70000
(f) (40,560 + 750) + 391 = 40,560 + (750 + 391)

Exercise 4.2

1. (a)
$$\begin{array}{r} 1\,2\,4\,5\,6\,9\,4 \\ +\,4\,3\,2\,1\,2\,0\,3 \\ \hline 5\,5\,6\,6\,8\,9\,7 \end{array}$$
(b)
$$\begin{array}{r} 3\,7\,6\,5\,4\,8\,4 \\ +\,3\,8\,7\,8\,4\,6\,7 \\ \hline 7\,6\,4\,3\,9\,5\,1 \end{array}$$
(c)
$$\begin{array}{r} 1\,8\,4\,1\,6\,5\,6\,1 \\ +\,3\,2\,3\,8\,4\,4\,3\,9 \\ \hline 5\,0\,8\,0\,1\,0\,0\,0 \end{array}$$

(d)
$$\begin{array}{r} 2\,6\,5\,8\,4\,3\,1\,3 \\ +\,3\,8\,4\,1\,2\,7\,8\,3 \\ \hline 6\,4\,9\,9\,7\,0\,9\,6 \end{array}$$
(e)
$$\begin{array}{r} 9\,4\,8\,4\,6\,8\,4 \\ 2\,3\,0\,0\,0\,6\,1 \\ +\,2\,3\,1\,4\,7\,8\,4 \\ \hline 1\,4\,0\,9\,9\,5\,2\,9 \end{array}$$
(f)
$$\begin{array}{r} 6\,1\,4\,1\,2\,3\,4\,9 \\ 2\,8\,4\,1\,7\,8\,4\,3 \\ +\,7\,8\,1\,6\,5\,7\,1 \\ \hline 9\,7\,6\,4\,6\,7\,6\,3 \end{array}$$

2. (a)
$$\begin{array}{r} 8\,6\,8\,4\,6\,9\,6 \\ +\,6\,6\,9\,4\,1\,4 \\ \hline 9\,3\,5\,4\,1\,1\,0 \end{array}$$
(b)
$$\begin{array}{r} 5\,9\,9\,5\,6\,5 \\ +\,8\,8\,6\,6\,0\,5 \\ \hline 1\,4\,8\,6\,1\,7\,0 \end{array}$$

(c)
$$\begin{array}{r} 7\,3\,7\,3\,8\,9\,2 \\ +\,9\,6\,0\,6\,1\,2 \\ \hline 8\,3\,3\,4\,5\,0\,4 \end{array}$$
(d)
$$\begin{array}{r} 8\,9\,6\,8\,4\,1\,6 \\ 8\,9\,2\,3\,1\,4 \\ +\,3\,1\,5\,2\,6\,1\,2\,0 \\ \hline 4\,1\,3\,8\,6\,8\,5\,0 \end{array}$$

3. (a)
$$\begin{array}{r} 9\,\boxed{8}\,6\,5\,\boxed{7} \\ +\,3\,8\,7\,8\,8 \\ \hline 1\,\boxed{3}\,7\,4\,\boxed{4}\,5 \end{array}$$
(b)
$$\begin{array}{r} 7\,4\,8\,\boxed{2}\,6\,8\,\boxed{9} \\ +\,8\,3\,\boxed{1}\,7\,\boxed{8}\,8\,3 \\ \hline 1\,5\,\boxed{8}\,0\,0\,5\,7\,2 \end{array}$$

Exercise 4.3

1. Cost of a house = ₹ 55,23,800
Cost of a car = + ₹ 8,49,350
The money he spent = ₹ 63,73,150

So, he spent ₹ 63,73,150 in all.

2. No. of soap cakes = 18,34,869
No. of bottles of cold drinks = + 2,52,86,147
Total no. of items = 2,71,21,016

So, the company manufactured 2,71,21,016 items.

3. Population of country A = 14,65,86,300
Population of country B = + 6,15,21,350
Total population = 20,81,07,650

So, the population of both the countries is 20,81,07,650.

4. No. of male voters = 98,41,628
No. of females voters = + 37,64,162
Total no. of voters = 1,36,05,790

So, the eligible voters in the state are 1,36,05,790.

5. The money Mr. kapoor had = ₹ 47,35,150
The money he deposited = + ₹ 18,87,250
The money he had now = ₹ 66,22,400

Exercise 4.4

1. (a) 79,34,693 – 0 = 79,34,693 (b) 6,66,66,666 – 1 = 6,66,66,665

(c) 6,34,507 – 6,34,507 = 0 (d) 8,19,734 – 0 = 8,19,734

Exercise 4.5

1. (a)
$$\begin{array}{r} 5\,8\,4\,2\,2\,3 \\ -\,1\,3\,8\,9\,9\,8 \\ \hline 4\,4\,5\,2\,2\,5 \end{array}$$
(b)
$$\begin{array}{r} 8\,6\,8\,0\,4\,7\,7 \\ -\,5\,3\,8\,9\,9\,4\,1 \\ \hline 3\,2\,9\,0\,5\,3\,6 \end{array}$$
(c)
$$\begin{array}{r} 7\,6\,5\,7\,5\,0\,4 \\ -\,2\,9\,4\,1\,8\,3\,8 \\ \hline 4\,7\,1\,5\,6\,6\,6 \end{array}$$

(d)
$$\begin{array}{r} 6\,5\,4\,0\,2\,3\,4 \\ -\,1\,4\,2\,9\,4\,1\,4 \\ \hline 5\,1\,1\,0\,8\,2\,0 \end{array}$$
(e)
$$\begin{array}{r} 9\,6\,5\,1\,6\,6\,2\,4 \\ -\,3\,9\,9\,0\,6\,6\,4\,7 \\ \hline 5\,6\,6\,0\,9\,9\,7\,7 \end{array}$$
(f)
$$\begin{array}{r} 9\,7\,8\,4\,2\,4\,3\,6 \\ -\,6\,5\,1\,4\,3\,8\,4\,2 \\ \hline 3\,2\,6\,9\,8\,5\,9\,4 \end{array}$$

2. (a) 91,41,662 – 88,99,412 = 2,42,250

(b) 86,00,004 – 23,14,164 = 62,85,840

(c) 9,70,00,654 – 7,38,41,642 = 2,31,59,012

(d) 8,69,41,237 – 2,86,54,124 = 5,82,87,113

3. (a) The mineund = 8,00,03,014
The subtrahend = – 5,91,46,239
2,08,56,775

4. The minuend = 1,85,34,126
The subtrahend = – 8,84,163
The difference = 1,76,49,963

Check the answer : Difference + sutrahend = minuend
1,76,49,963 + 8,84,163 = 1,85,34,126
1,85,34,126 = 1,85,34,126.
So, the ans is correct.

5. (a)
$$\begin{array}{r} 9\,\boxed{9}\,9\,4\,9\,8\,6 \\ -\,4\,3\,4\,\boxed{1}\,6\,\boxed{4}\,4 \\ \hline \boxed{5}\,6\,5\,3\,\boxed{3}\,4\,\boxed{2} \end{array}$$
(b)
$$\begin{array}{r} 8\,\boxed{1}\,6\,5\,\boxed{6}\,5 \\ -\,4\,3\,\boxed{4}\,1\,7\,6 \\ \hline \boxed{3}\,8\,2\,\boxed{3}\,8\,\boxed{9} \end{array}$$

Exercise 4.6

1. Sum of two numbers = 68,47,911
One number = 36,27,819
Other number = 68,47,911 – 36,27,819 = 32,20,092

2. Cost of the building = ₹ 4,84,16,238
A man has = ₹ 1,57,68,416
The money he required = 4,84,16,238 – 1,57,68,416
= ₹ 3,26,47,822.

3. Cost of a computer and printer both = ₹ 74,984
Cost of a computer = ₹ 35,978
Cost of the printer = 74,984 – 35978 = ₹ 39,006
So, the cost of the printer is ₹ 39,006.

4. Weight of wheat produced = 4,63,841 kg
Weight of rice produced = 2,14,576 kg

Weight of cereal produced = 4,63,841 + 2,14,576 = 6,78,417 kg
The capacity of train to carry = 2,02,025 kg
Weight of cereal left = 6,78,417
− 2,02,025
4,76,392 kg

So, 4,76,392 kg of cereal will be left behind for the second trip.

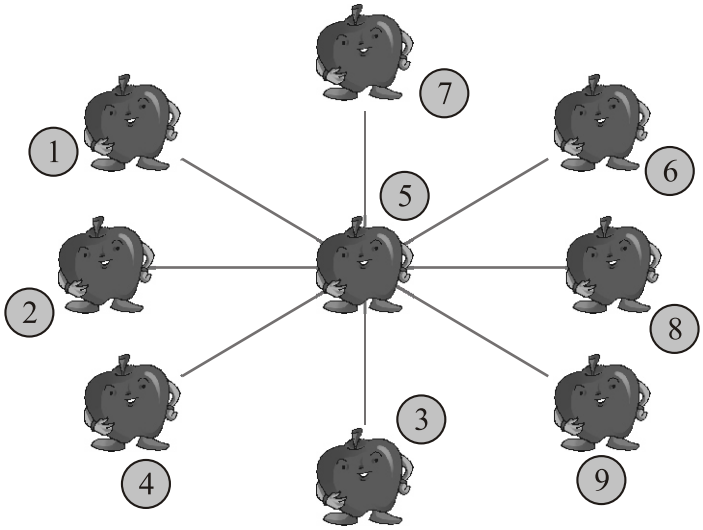
5. Total voters = 76,56,322
Voters cast votes = 62,93,488
Voters did not cast votes = 76,56,322 − 62,93,488 = 13,62,834
So, 13,62,834 voters did not cost their votes.

6. 7,70,770 − 3,24,985 = 4,45,785.

MCQ's

1. (c) **2.** (a) **3.** (b) **4.** (c).

Worksheet



5. Multiplication and Division

Exercise 5.1

1. (a) 93,597 × 0 = 0.
(b) 6,79,125 × 1 = 6,79,125.
(c) 25,798 × 69,437 = 69,437 × 25,798.
(d) 9,35,095 × 0 = 0.
(e) 1 × 85,793 = 85,793.
(f) 8175 × 5595 = 5595 × 8175.
(g) 82 × (40 × 6) = (82 × 40) × 6 = 40 × (82 × 6).

2. (a) $99 \times 107 = (100 - 1) \times 107 = 100 \times 107 - 1 \times 107$
$= 10700 - 107 = 10,593$

(b) $79 \times 92 = 79 \times (100 - 8) = 79 \times 100 - 79 \times 8$
$= 7900 - 632 = 7268$

(c) $46 \times 139 = 46 \times (100 + 30 + 9) = 46 \times 100 + 46 \times 30 + 46 \times 9$
$= 4600 + 1380 + 414 = 6394$

(d) $19 \times 3065 = 19 \times (3000 + 60 + 5) = 19 \times 3000 + 19 \times 60 + 19 \times 5$
$= 57000 + 1140 + 95 = 58235.$

(e) $65 \times 98 = 65 \times (100 - 2)$
$= 6500 - 130 = 6370.$

(f) $28 \times 878 = 28 \times (800 + 70 + 8)$
$= 28 \times 800 + 28 \times 70 + 28 \times 8$
$= 22400 + 1960 + 224 = 24584.$

Exercise 5.2

1. (a) $68 \times 100 = 6800$ (b) $6935 \times 1000 = 6935000$

(c) $286 \times 10000 = 2860000$ (d) $121 \times 100000 = 12100000$

(e) $9999 \times 10 = 99990$ (f) $10,00,000 \times 89 = 8,90,00,000$

2. (a) $178 \times 50 = 8,900$ (b) $2369 \times 60 = 1,42,140$

(c) $861 \times 900 = 7,74,900$ (d) $13169 \times 600 = 79,01,400$

(e) $7215 \times 5000 = 3,60,75000$ (f) $8271 \times 3000 = 2,48,13,000$

Exercise 5.3

1. (a)

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

(b)

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

(c)

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

2. (a) 55555×626

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

(b) 60121×585

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

(c) 18357×369

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

(d) 470896×813

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

(e) 764897×252

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

(f) 385462×518

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

(g) 35639×428

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

(h) 124597×96

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

(i) 84246×729

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

Exercise 5.4

1. No. of apartments = 48
Cost of each apartments = ₹ 7,23,495
Cost of 48 apartments = 7,23,495 × 48

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

So, the builder will earn 3,47,27,760 by selling all the apartments.

2. No. of students = 438
Each student pays = ₹ 18,875
438 students pay =

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

So, 438 students pay ₹ 82,67,250 altogether for one year.

3. Saving in one year = ₹ 16,439
Saving in 25 years =

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

So, he will save ₹ 4,10,975 in 25 years.

4. No. of employees = 1,37,073
∵ Bonus of one employee = ₹ 465
∴ Bonus of all the employees =

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

So, the total bonus amount will be ₹ 6,37,38,945.

5. No. of members = 56,348
∵ Contribution of 1 member = ₹ 275
∴ Contribution of all members =

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

So, the club collects ₹ 1,54,95,700 in all.

6. No. of books = 3,26,174
Cost of 1 book = ₹ 164
Cost of all books =

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

So, the publisher earned ₹ 5,34,92,536.

Exercise 5.5

1. (a) $9359 \div 9359 = 1$ (b) $18{,}750 \div 1 = 18{,}750$
(c) $0 \div 12{,}559 = 0$ (d) $89{,}549 \div 89{,}549 = 1$
(e) $0 \div 99{,}999 = 0$ (f) $35 \div 35 = 1$

2. Divisor = 45, Quotient = 25, Remainder = 9
Dividend = Divisor × Quotient + Remainder
$= 45 \times 25 + 9$
$= 1125 + 9 = 1134$
So, the no. is 1134.

3. Dividend = 4904, Quotient = 29, Remainder = 3
Dividend = Divisor × Quotint + Remainder
$4904 = \text{Divisor} \times 29 + 3$
$4904 - 3 = \text{Divisor} \times 29$
$4901 = \text{Divisor} \times 29$
$\text{Divisor} = \frac{4901}{29} = 169$

$$\begin{array}{r} 169 \\ 29\overline{)4901} \\ -29 \\ \hline 200 \\ -174 \\ \hline 261 \\ -261 \\ \hline \times \end{array}$$

4.

	Number	Quotient	Remainder
(a)	$4137 \div 1000$	4	137
(b)	$72957 \div 1000$	72	957
(c)	$25790 \div 10000$	2	5790
(d)	$921112 \div 10000$	92	1112

Exercise 5.6

1. (a)

$$\begin{array}{r} 39506 \\ 25\overline{)987654} \\ -75 \\ \hline 237 \\ -225 \\ \hline 126 \\ -125 \\ \hline 154 \\ -150 \\ \hline 4 \end{array}$$

Checking :
Dividend = Divisor × Quotient + Remainder
$= 25 \times 39506 + 4$
$= 987650 + 4$
$= 987654$
Quotient = 39506, Remainder = 4

(b)
$$
\begin{array}{r}
4566 \\
219\overline{)999999} \\
-876 \\
\hline
1239 \\
-1095 \\
\hline
1449 \\
-1314 \\
\hline
1359 \\
-1314 \\
\hline
45
\end{array}
$$

Checking :
Dividend = Divisor × Quotient + Remainder
= 219 × 4566 + 45
= 999954 + 45
= 999999
Quotient = 4566,
Remainder = 45

(c)
$$
\begin{array}{r}
6728 \\
628\overline{)4225450} \\
-3768 \\
\hline
4574 \\
-4396 \\
\hline
1785 \\
-1256 \\
\hline
5290 \\
-5024 \\
\hline
266
\end{array}
$$

Checking :
Dividend = Divisor × Quotient + Remainder
= 628 × 6728 + 266
= 4225184 + 266
= 4225450
Quotient = 6728,
Remainder = 266

2. (a) 18,923 ÷ 15

$$
\begin{array}{r}
1261 \\
15\overline{)18923} \\
-15 \\
\hline
39 \\
-30 \\
\hline
92 \\
-90 \\
\hline
23 \\
-15 \\
\hline
8
\end{array}
$$

Checking :
Dividend = Divisor × Quotient + Remainder
= 15 × 1261 + 8
= 18915 + 8
= 18923
Quotient = 1261,
Remainder = 8

(b) 7239 ÷ 37

$$
\begin{array}{r}
195 \\
37\overline{)7239} \\
-37 \\
\hline
353 \\
-333 \\
\hline
209 \\
-185 \\
\hline
24
\end{array}
$$

Checking :
Dividend = Divisor × Quotient + Remainder
= 37 × 195 + 24
= 7215 + 24
= 7239
Quotient = 195,
Remainder = 24

(c) $42872 \div 36$

$$
\begin{array}{r}
1190 \\
36\overline{)42872} \\
-36 \\
\hline
68 \\
-36 \\
\hline
327 \\
-324 \\
\hline
32
\end{array}
$$

Checking :

Dividend = Divisor × Quotient + Remainder
$= 36 \times 1190 + 32$
$= 42840 + 32$
$= 42872$
Quotient = 1190,
Remainder = 32

(d) $26{,}854 \div 284$

$$
\begin{array}{r}
94 \\
284\overline{)26854} \\
-2556 \\
\hline
1294 \\
-1136 \\
\hline
158
\end{array}
$$

Checking :

Dividend = Quotient + Remainder
$= 284 \times 94 + 158$
$= 26696 + 158$
$= 26854$
Quotient = 94,
Remainder = 158

(e) $162{,}097 \div 176$

$$
\begin{array}{r}
921 \\
176\overline{)162097} \\
-1584 \\
\hline
369 \\
-352 \\
\hline
177 \\
-176 \\
\hline
1
\end{array}
$$

Checking :

Dividend = Divisor × Quotient + Remainder
$= 176 \times 921 + 1$
$= 162096 + 1$
$= 162097$
Quotient = 921
Remainder = 1

(f) $32138 \div 368$

$$
\begin{array}{r}
87 \\
368\overline{)32138} \\
-2944 \\
\hline
2698 \\
-2576 \\
\hline
122
\end{array}
$$

Checking :

Dividend = Divisor × Quotient + Remainder
$= 368 \times 87 + 122$
$= 32016 + 122$
$= 32138$
Quotient = 87,
Remainder = 122

(g) $25766 \div 115$

$$
\begin{array}{r}
224 \\
115\overline{)25766} \\
-230 \\
\hline
276 \\
-230 \\
\hline
466 \\
-460 \\
\hline
6
\end{array}
$$

Checking :

Dividend = Divisor × Quotient + Remainder
$= 115 \times 224 + 6$
$= 25760 + 6$
$= 25766$
Quotient = 224,
Remainder = 6

(h) $42135 \div 533$

$$\begin{array}{r} 79 \\ 533\overline{)42135} \\ -3731 \\ \hline 4825 \\ -4797 \\ \hline 28 \end{array}$$

Checking :

Dividend = Divisor × Quotient + Remainder
$= 533 \times 79 + 28$
$= 42107 + 28$
$= 42135$
Quotient = 79,
Remainder = 28

(i) $53962 \div 215$

$$\begin{array}{r} 250 \\ 215\overline{)53962} \\ -430 \\ \hline 1096 \\ -1075 \\ \hline 212 \end{array}$$

Checking :

Dividend = Divisor × Quotient + Remainder
$= 215 \times 250 + 212$
$= 53750 + 212$
$= 53962.$
Quotient = 250
Remainder = 212

Exercise 5.7

1. ∵ Cost of 216 mobile phones = ₹ 11,72,880
∴ Cost of 1 mobile phones $= 11{,}72{,}880 \div 216$
$=$ ₹ 5,430
So, the cost of 1 mobile phone is ₹ 5,430.

$$\begin{array}{r} 4585 \\ 125\overline{)573125} \\ -500 \\ \hline 731 \\ -625 \\ \hline 1062 \\ -1000 \\ \hline 625 \\ -625 \\ \hline \times \end{array}$$

2. Product of two numbers = 2,69,928
One number = 552
The other number $= 269928 \div 552$
$= 489$

$$\begin{array}{r} 489 \\ 552\overline{)269928} \\ -2208 \\ \hline 4912 \\ -4416 \\ \hline 4968 \\ -4968 \\ \hline \times \end{array}$$

3. Total money = ₹ 5,73,125
Total labourers = 125
Each labour got $= 5{,}73{,}125 \div 125$
$=$ ₹ 4585
So, each labour got ₹ 4585.

$$\begin{array}{r} 4585 \\ 125\overline{)573125} \\ -500 \\ \hline 731 \\ -625 \\ \hline 1062 \\ -1000 \\ \hline 625 \\ -625 \\ \hline \times \end{array}$$

4. Total books = 614250
No. of books in each box = 945
No. of boxes = 614250 ÷ 945
= 650 boxes
So, 650 boxes are required to pack 6,14,250 books.

```
      650
945)614250
  -5670
   4725
  -4725
      ×
```

5. Total mangoes = 18247575
No. of mangoes in each carton = 563
No. of cartons = 18247575 ÷ 563
= 32411 cartons
So, 32411 cartons are required and 182 mangoes will be left for packing.

```
      32411
563)18247575
  -1689
   1357
  -1126
    2315
   -2252
     637
    - 563
      745
    - 563
      182
```

6. ∵ The cost of 316 washing machines = ₹ 8,07,380
∴ The cost of one washing machine = 8,07,380 ÷ 316
= 2,555
So, the cost of one washing machine is ₹ 2,555.

```
      2555
316)807380
  -632
   1753
  -1580
    1738
   -1580
     1580
    - 1580
      ×
```

7. Total people = 52,650
∵ No. of rows required for 975 people = 1
∴ No. of rows required for 52,650 people = 52,650 ÷ 975
= 54 rows
So, there are 54 rows of seats in the stadium.

```
      54
975)52650
  -4875
   3900
  -3900
      ×
```

MCQ's

1. (a) **2.** (c) **3.** (b) **4.** (b).

Worksheet

Do yourself

6. Multiples and Factors

Exercise 6.1

1. (a) 3 : **6, 9, 12, 15, 18**
(b) 12 : **24, 36, 48, 60, 72**
(c) 11 : **22, 33, 44, 55, 66**

2. (a) multiples of 12 = 12, 24 , 36, 48 ....

multiples of 8 = 8, 16, 24 , 32, 40, 48 ....

So, two common multiples of 12 and 8 are 24 and 48.

(b) multiples of 16 = 16, 32, 48 , 64, 80, 96 ...

multiples of 6 = 6, 12, 18, 24, 30, 36, 42, 48 , 54, 60, 66, 72, 78, 84, 90, 96

So, two common multiples of 16 and 6 are 48 and 96.

3. (a) Factors of 24 = 1, 2, 2, 2, 3

2	24
2	12
2	6
3	3
	1

(b) Factors of 36 = 1, 2, 2, 3, 3

2	36
2	18
3	9
3	3
	1

(c) Factors of 108 = 1, 2, 2, 3, 3, 3

2	108
2	54
3	27
3	9
3	3
	1

(d) Factors of 25 = 1, 5, 5

5	25
5	5
	1

4. (a) Factors of 14 = 1 , 2 , 7

Factors of 30 = 1 , 2 , 3, 5

So, the common factors of 14 and 30 are 1 and 2.

2	14
7	7
	1

2	30
3	15
5	5
	1

(b) Factors of 27 = 1 , 3, 3 , 3

Factors of 42 = 1 , 2 , 3, 7

So, the common factors of 27 and 42 are 1 and 3.

3	27
3	9
3	3
	1

2	42
3	21
7	7
	1

(c) Factors of 44 = 1, 2, 2, 11

Factors of 66 = 1, 2, 3, 11

So, the common factors of 44 and 66 are 1 and 2.

2	44
2	22
11	11
	1

2	66
3	33
11	11
	1

(d) Factors of 36 = 1, 2, 2, 3, 3

Factors of 45 = 1, 3, 3, 5

So, the common factors of 36 and 45 are 1 and 3.

2	36
2	18
3	9
3	3
	1

3	45
3	15
5	5
	1

Exercise 6.2

1. Even numbers between 1 and 30 = 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28
Odd numbers between 1 and 30 = 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29

2. Prime numbers between 20 and 40 = 23, 29, 31, 37

3. Composite numbers between 23 and 46
= 24, 25, 26, 27, 28, 30, 32, 33, 34, 35, 36, 38, 39, 40, 42, 44, 45

4. (a) Factors of 21 = 1, 3, 7

Factors of 27 = 1, 3, 3, 3

∵ 21 and 27 have a common factor 3 other than 1.

∴ 21 and 27 are not co-prime.

3	21
7	7
	1

3	27
3	9
3	3
	1

(b) Factors of 25 = 1, 5, 5

Factors of 12 = 1, 2, 2, 3

∵ 25 and 12 have only one common factor 1.

∴ 25 and 12 are co-prime.

5	25
5	5
	1

2	12
2	6
3	3
	1

(c) Factors of 18 = 1, 2, 3, 3

Factors of 24 = 1, 2, 2, 2, 3

∵ 18 and 24 have common factors 2 and 3 other than 1.

∴ 18 and 24 are not co-prime.

2	18
3	9
3	3
	1

2	24
2	12
2	6
3	3
	1

(d) Factors of 14 = 1 , 2 , 7

Factors of 18 = 1 , 2 , 3, 3

∵ 14 and 18 have a common factor 2 other than 1.

∴ 14 and 18 are not co-prime.

2	14
7	7
	1

2	18
3	9
3	3
	1

(e) Factors of 8 = 1 , 2, 2, 2

Factors of 15 = 1 , 3, 5

∵ 8 and 15 have only one common factor 1,

∴ 8 and 15 are co-prime.

2	8
2	4
2	2
	1

3	15
5	5
	1

(f) Factors of 13 = 1 , 13

Factors of 17 = 1 , 17

13	13
	1

17	17
	1

∵ 13 and 17 have only one common factor 1.

∴ 13 and 17 are co-prime.

Exercise 6.3

1. (a)
- 37 is not divisible by 2 since it does not end with 0, 2, 4, 6 or 8
- 168 is divisible by 2 since it ends with 8.
- 145 is not divisible by 2 since it does not end with 0, 2, 4, 6 or 8.
- 68460 is divisible by 2 since it ends with 0.

(b)
- 96 is divisible by 8 since its two digits are not divisible by 8.
- 726 is not divisible by 8 since its three digits are not divisible by 8.
- 89304 is divisible by 8 since its last three digits are divisible by 8.
- 9831016 is divisible by 8 since its last three digits are divisible by 8.

(c)
- $9+1+8=18$
  918 is divisible by 3 since sum of its digits is divisible by 3.
- $7+3+8+6=24$
  7386 is divisible by 3 since sum of its digits is divisible by 3.
- $2+9+3+7+6+1=28$
  293761 is not divisible by 3 since sum of its digits is not divisible by 3.
- $3+1+3+0+1+2=10$
  313012 is not divisible by 3 since sum of its digits is not divisible by 3.

(d)
- Sum of odd digits = 1 + 1 = 2
  Sum of even digits = 1
  difference $= 2-1=1$
  Since 1 is not divisible by 11.
  So 111 is not divisible by 11.
  Sum of odd digits = $6+3=9$
- Sum of even digits $= 7+1=8$
  difference $= 9-8=1$
  Since 1 is not divisible by 11
  So, 6731 is not divisible by 11.

- Sum of odd digits $= 2 + 5 = 7$
  Sum of even digits $= 3 + 4 = 7$
  Since 0 is divisible by 11.
  So, 2354 is divisible by 11.
- Sum of odd digits $= 7 + 8 + 9 + 0 = 24$
  Sum of even digits $= 1 + 0 + 1 = 2$
  Difference $= 24 - 2 = 22$
  Since 22 is divisible by 11.
  So, 7180910 is divisible by 11.

(e)
- 640 is divisible by 5 since it ends with 0.
- 379 is not divisible by 5 since it does not end with 0 or 5.
- 468545 is divisible by since it ends with 5.
- 379863 is not divisible by 5 since it does not end with 0 or 5.

(f) 6102 is divisible by 6 since it is divisible by both 2 and 3.
15 is not divisible by 6 since it is divisible by 3 but not divisible by 2.
308 is not divisible by 6. Since it is divisible by 2 but not divisible by 3.
896723 is not divisible by 6 since it is divisible by neither 2 nor 6.

(g) 6364 is not divisible by 10 since it does not end with 0.
97860 is divisible by 10 since it ends with 0.
5280 is divisible by 10 since it ends with 0.
795860 is divisible by 10 since it ends with 0.

(h) 1654 is not divisible by 4 since its last two digits (54) is not divisible by 4.
69388 is divisible by 4 since its last two digits (88) is divisible by 4.
33608 is divisible by 4 since its last two digits (08) is divisible by 4.
40 is divisible by 4 since its last two digits (40) is divisible by 4.

2. (a) False (b) True (c) True (d) True (e) False.

Exercise 6.4

1. (a) $36 = 2 \times 2 \times 3 \times 3$

2	36
2	18
3	9
3	3
	1

(b) $64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$

2	64
2	32
2	16
2	8
2	4
2	2
	1

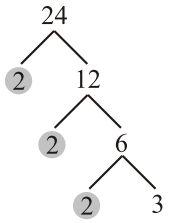
(c) $75 = 3 \times 5 \times 5$

3	75
5	25
5	5
	1

(d) $91 = 7 \times 13$

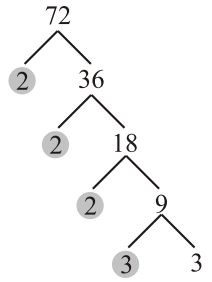
7	91
13	13
	1

2. (a)



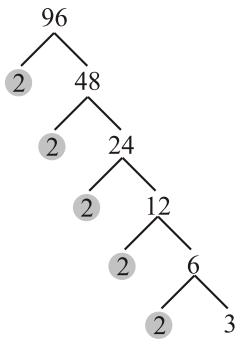
$24 = 2 \times 2 \times 2 \times 3$

(b)



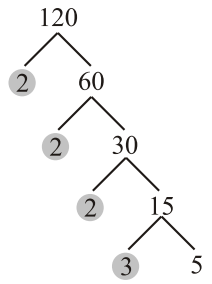
$72 = 2 \times 2 \times 2 \times 3 \times 3$

(c)



$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$

(d)



$120 = 2 \times 2 \times 2 \times 3 \times 5$

Exercise 6.5

1. (a) 54 and 108

2	54
3	27
3	9
3	3
	1

2	108
2	54
3	27
3	9
3	3
	1

$54 = 1 \times 2 \times 3 \times 3 \times 3$

$108 = 1 \times 2 \times 3 \times 3 \times 3 \times 2$

H.C.F. $= 1 \times 2 \times 3 \times 3 = 54$

(b) 216 and 252

2	216
2	108
2	54
3	27
3	9
3	3
	1

2	252
2	126
3	63
3	21
7	7
	1

$216 = 1 \times 2 \times 2 \times 3 \times 3 \times 2 \times 3$

$252 = 1 \times 2 \times 2 \times 3 \times 3 \times 7$

H.C.F. $= 1 \times 2 \times 2 \times 3 = 36$

(c) 430 and 280 and 640

2	430
5	215
43	43
	1

2	280
2	140
2	70
5	35
7	7
	1

2	640
2	320
2	160
2	80
2	40
2	20
2	10
5	5
	1

$430 = 1 \times 2 \times 5 \times 43$

$280 = 1 \times 2 \times 5 \times 2 \times 2 \times 7$

$640 = 1 \times 2 \times 5 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

H.C.F. $= 1 \times 2 \times 5 = 10$

(d) 3261, 3093 and 5577

3	3261
1087	1087
	1

3	3093
1031	1031
	1

3	5577
11	1859
13	169
13	13
	1

$3261 = 1 \times 3 \times 1087$
$3093 = 1 \times 3 \times 1031$
$5577 = 1 \times 3 \times 11 \times 13 \times 13$

H.C.F. $= 1 \times 3 = 3$

(e) 762 and 1270

2	762
3	381
127	127
	1

2	1270
5	635
127	127
	1

$762 = 1 \times 2 \times 3 \times 127$
$1270 = 1 \times 2 \times 5 \times 127$

H.C.F. $= 1 \times 2 \times 127 = 254$

(f) 160, 182 and 96

2	160
2	80
2	40
2	20
2	10
5	5
	1

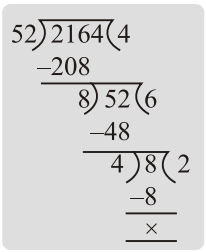
2	182
7	91
13	13
	1

2	96
2	48
2	24
2	12
2	6
3	3
	1

$160 = 1 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5$
$182 = 1 \times 2 \times 7 \times 13$
$96 = 1 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3$

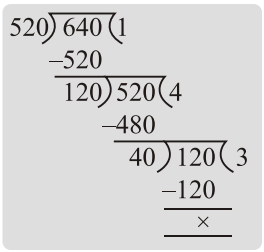
H.C.F. $= 1 \times 2 = 2$

2. (a) 52 and 216



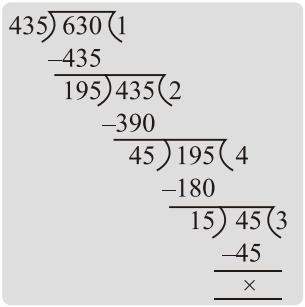
∴ H.C.F. = 4

(b) 640 and 520



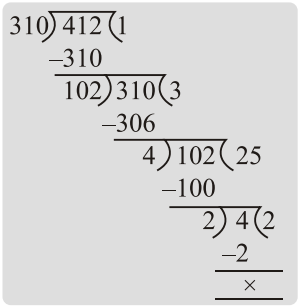
∴ H.C.F. = 40

(c) 630 and 435



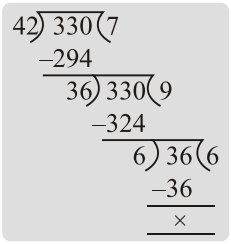
∴ H.C.F. = 15

(d) 310 and 412



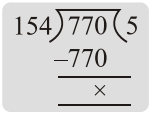
∴ H.C.F. = 2

(e) 42 and 330

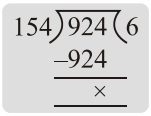


∴ H.C.F. = 6

(f) 154, 770 and 924



∴ H.C.F. of 154 and 770 = 154



∴ H.C.F. of 154 and 924 = 154

So, H.C.F. of 154, 770 and 924 = 154

Exercise 6.6

1. (a) 15 and 30

3	15
5	5
	1

2	30
3	15
5	5
	1

$15 = 3 \times 5$
$30 = 3 \times 5 \times 2$

L.C.M. of 15 and $30 = 3 \times 5 \times 2 = 30$

(b) 42 and 84

2	42
3	21
7	7
	1

2	84
2	42
3	21
7	7
	1

$42 = 2 \times 3 \times 7$
$84 = 2 \times 3 \times 7 \times 2$

L.C.M. of 42 and $84 = 2 \times 3 \times 7 \times 2 = 84$

(c) 45 and 65

3	45
3	15
5	5
	1

5	65
13	13
	1

$45 = 5 \times 3 \times 3$
$65 = 5 \times 13$

L.C.M. of 45 and $65 = 5 \times 3 \times 3 \times 13 = 585$

(d) 64, 96 and 112

2	64
2	32
2	16
2	8

2	96
2	48
2	24
2	12

2	112
2	56
2	28
2	14

2	4
2	2
	1

2	6
3	3
	1

7	7
	1

$64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$
$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$
$112 = 2 \times 2 \times 2 \times 2 \times 7$

L.C.M. of 64, 96 and 112 $= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 7 = 1344$.

(e) 125, 180 and 210

5	125
5	25
5	5
	1

2	180
2	90
3	45
3	15
5	5
	1

2	210
3	105
5	35
7	7
	1

$125 = 5 \times 5 \times 5$
$180 = 5 \times 2 \times 3 \times 2 \times 3$
$210 = 5 \times 2 \times 3 \times 7$

L.C.M. of 125, 180 and 210 $= 5 \times 5 \times 5 \times 2 \times 3 \times 2 \times 3 \times 7 = 31500$.

(f) 198, 216 and 360

2	198
3	99
3	33
11	11
	1

2	216
2	108
2	54
3	27
3	9
3	3
	1

2	360
2	180
2	90
3	45
3	15
5	5
	1

$198 = 2 \times 3 \times 3 \times 11$
$216 = 2 \times 3 \times 3 \times 2 \times 2 \times 3$
$360 = 2 \times 3 \times 3 \times 2 \times 2 \times 5$

L.C.M. of 198, 216 and 360 $= 2 \times 3 \times 3 \times 11 \times 2 \times 2 \times 3 \times 5 = 11880$.

2. (a) 22, 33 and 44

2	22, 33, 44
2	11, 33, 22
3	11, 33, 11
11	11, 11, 11
	1, 1, 1

L.C.M. of 22, 33 and 44
$= 2 \times 2 \times 3 \times 11 = 132.$

(b) 16, 24 and 32

2	16, 24, 32
2	8, 12, 16
2	4, 6, 8
2	2, 3, 4
2	1, 3, 2
3	1, 3, 1,
	1, 1, 1

L.C.M. of 16, 24, 32
$= 2 \times 2 \times 2 \times 2 \times 2 \times 3 = 96.$

(c) 35, 51 and 85

3	35, 51, 85
5	35, 17, 85
7	7, 17, 17
17	1, 17, 17
	1, 1, 1

L.C.M. of 35, 51 and 85
$= 3 \times 5 \times 7 \times 17 = 1785.$

(d) 12, 24 and 36

2	12, 24, 36
2	6, 12, 18
2	3, 6, 9
3	3, 3, 9
3	1, 1, 3
	1, 1, 1

L.C.M. of 12, 24 and 36
$= 2 \times 2 \times 2 \times 3 \times 3 = 72.$

(e) 16, 91, 90, 455

2	16, 91, 90, 455
2	8, 91, 45, 455
2	4, 91, 45, 455
2	2, 91, 45, 455
3	1, 91, 45, 455
3	1, 91, 15, 455
5	1, 91, 5, 455
7	1, 91, 1, 91
13	1, 13, 1, 13
	1, 1, 1, 1

L.C.M. of16, 91, 90 and 455
$= 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 7 \times 13 = 65520.$

(f) 44, 126 and 198

2	44, 126, 198
2	22, 63, 99
3	11, 63, 99
3	11, 21, 33
7	11, 7, 11
11	11, 1, 11
	1, 1, 1

L.C.M. of 44, 126 and 198
$= 2 \times 2 \times 3 \times 3 \times 7 \times 11 = 2772.$

Exercise 6.7

1.

2	28
2	14
7	7
	1

2	48
2	24
2	12
2	6
3	3
	1

$28 = 1 \times 2 \times 2 \times 7$
$48 = 1 \times 2 \times 2 \times 2 \times 2 \times 3$

H.C.F. of 28 and 48 $= 1 \times 2 \times 2 = 4$
So, the greatest no. which divides 28 and 48 is 4.

2.

2	16, 30, 45
2	8, 15, 45
2	4, 15, 45
2	2, 15, 45
3	1, 15, 45
3	1, 5, 15
5	1, 5, 5
	1, 1, 1

L.C.M. of 16, 30, 45 $= 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 720$
So, the required smallest no. is 720.

3. We have to find the no. which divides 619 to give remainder 7
$\therefore \quad 619 - 7 = 612$
H.C.F. of 396 and 612

$$
\begin{array}{r}
396\overline{)612}(1 \\
-396 \\
\hline
216\overline{)396}(1 \\
-216 \\
\hline
180\overline{)216}(1 \\
-180 \\
\hline
36\overline{)180}(5 \\
-180 \\
\hline
\times
\end{array}
$$

$\therefore \quad$ H.C.F. = 36
So, the required greatest no. is 36.

4. L.C.M. of 75, 135, 189 and 252

2	75, 135, 189, 252
2	75, 135, 189, 126
3	75, 135, 189, 63
3	25, 45, 63, 21
3	25, 15, 21, 7
5	25, 5, 7, 7
5	5, 1, 7, 7
7	1, 1, 7, 7
	1, 1, 1, 1

L.C.M. $= 2 \times 2 \times 3 \times 3 \times 3 \times 5 \times 5 \times 7 = 18900$
So, the required smallest no. $= 18900 - 7 = 18893$.

5. L.C.M. of 168, 252, 336 and 378

2	168, 252, 336, 378
2	84, 126, 168, 189
2	42, 63, 84, 189
2	21, 63, 42, 189
3	21, 63, 21, 189
3	7, 21, 21, 63
3	7, 7, 7, 21
7	7, 7, 7, 7
	1, 1, 1, 1

L.C.M. $= 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 7 = 3024$
So, the least amount of weight is 3024 kg.

6. H.C.F. of 120, 180 and 240

2	120
2	60
2	30
3	15
5	5
	1

2	180
2	90
3	45
3	15
5	5
	1

2	240
2	120
2	60
2	30
3	15
5	5
	1

$120 = 1 \times 2 \times 2 \times 3 \times 5 \times 2$

$180 = 1 \times 2 \times 2 \times 3 \times 5 \times 3$

$240 = 1 \times 2 \times 2 \times 3 \times 5 \times 2 \times 2$

H.C.F. $= 1 \times 2 \times 2 \times 3 \times 5 = 60$

So, the capacity of greatest container is 60 *l*.

7. L.C.M. of 30, 70, 120 and 140

2	30, 70, 120, 140
2	15, 35, 60, 70
2	15, 35, 30, 35
3	15, 35, 15, 35
5	5, 35, 5, 35
7	1, 7, 1, 7
	1, 1, 1, 1

L.C.M. $= 2 \times 2 \times 2 \times 3 \times 5 \times 7 = 840$

So, they will again tall together after 840 sec.

8. H.C.F. of 420 and 540

$$\begin{array}{r} 420\overline{)540}(1 \\ -420 \\ \hline 120\overline{)420}(3 \\ -360 \\ \hline 60\overline{)120}(2 \\ -120 \\ \hline \times \end{array}$$

H.C.F. = 60

So, maximum 60 students can be put in each group.

Exercise 6.8

1. H.C.F. = 126, L.C.M. = 2520, One no. = 504

$$\text{Other no.} = \frac{\text{H.C.F.} \times \text{L.C.M.}}{\text{One no.}}$$

$$= \frac{\overset{63}{\cancel{126}} \times \overset{10}{\cancel{2520}}}{\underset{\underset{1}{\cancel{252}}}{\cancel{504}}} = 630$$

So, the other no. is 630.

2. Product of two numbers = 360

L.C.M. = 60

$$\text{H.C.F.} = \frac{\text{Product of two numbers}}{\text{L.C.M.}} = \frac{360}{60} = 6$$

So, the H.C.F. is 6.

3. L.C.M. = 36, H.C.F. = 216
One no. = 54

$$\text{Other no.} = \frac{\text{L.C.M.} \times \text{H.C.F.}}{\text{One no.}}$$

$$= \frac{\overset{2}{\cancel{36}} \times 216}{\underset{27}{\cancel{54}}} = \frac{2 \times \overset{72}{\cancel{216}}}{\underset{1}{\cancel{3}}}$$

$$= 2 \times 72 = 144$$

So, the other no. is 144.

4. The product of two numbers = 4800
L.C.M. = 60

$$\text{H.C.F.} = \frac{\text{Product of two numbers}}{\text{L.C.M.}} = \frac{4800}{60} = 80$$

5. L.C.M. = 133, H.C.F. = 1596
One no. = 114

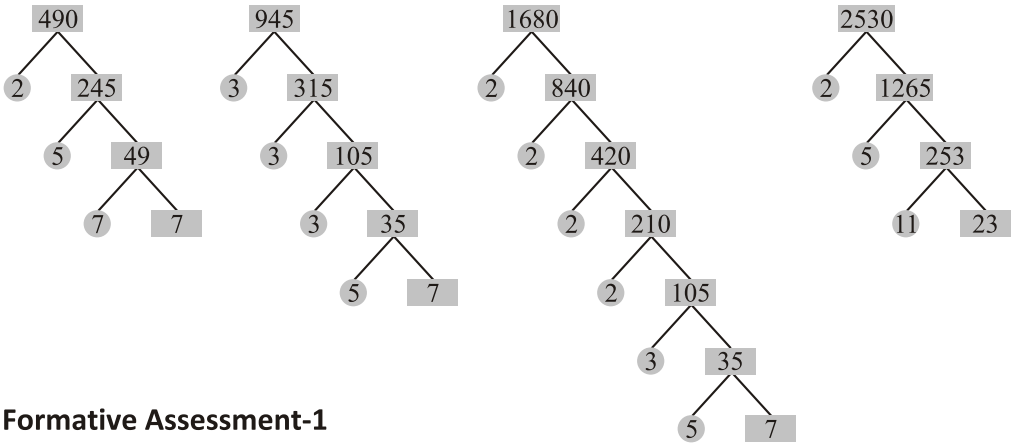
$$\text{Other no.} = \frac{\text{L.C.M.} \times \text{H.C.F.}}{\text{One no.}} = \frac{133 \times \overset{266}{\cancel{1596}}}{\underset{19}{\cancel{114}}}$$

$$= \frac{\overset{7}{\cancel{133}} \times 266}{\underset{1}{\cancel{19}}} = 1862$$

MCQ's

1. (a) **2.** (c) **3.** (a) **4.** (c).

Worksheet



Formative Assessment-1

1. (c) **2.** (a) **3.** (c) **4.** (a) **5.** (b)
6. (a) product (b) 8 (c) 14 (d) 9999999 (e) composite.
7. (a) True (b) False (c) True (d) True (e) False.