

# *Focus on* **MATHEMATICS**

Teacher's Manual  
Class 5



# TEACHER'S HELP BOOK

## MATHEMATICS-5

### Practice Exercise 1.1

1. (a) 2,35,741 = Two lakhs thirty-five thousand seven hundred forty one (b) 8,56,325 = Eight lakhs fifty six thousand three hundred twenty-five 2. (a) largest five digit number = 99,999 (b) smallest six digit number = 10,0000 3. (a) Thirty four thousand one hundred three = 34,103 (b) Fifty thousand seven hundred forty four = 50,744 (c) Sixty-five thousand seven hundred ninety-six = 65,796 (d) Four lakh fifty seven thousand seven hundred seven = 4,57,701 4. (a)  $34,678 = 30,000 + 4,000 + 600 + 70 + 8$  (b)  $26,145 = 20,000 + 6,000 + 100 + 40 + 5$  (c)  $3,35,415 = 3,00,000 + 30,000 + 5,000 + 400 + 10 + 5$  5.  $20,000 + 3,000 + 800 + 5 = 23,805$  (b)  $4,000 + 60 + 1 = 4061$  6. (a)  $20,404 + 1 = 20,405$  (b)  $35,596 + 1 = 35,597$  (c)  $25,997 + 1 = 25,998$  7.  $23,410 - 1 = 23409$  (b)  $36,700 - 1 = 36,699$  8. (a)  $>$  (b)  $<$  (c)  $<$  9. (a) 37,293; 37,927; 73,294; 73,926; 83,392 (b) 1,23,565; 1,23,656; 2,23,456; 3,32,456; 4,23,546 10. (a) 44,731; 43,316; 43,137; 35,371; 33,173 (b) 6,46,290; 6,46,209; 5,64,290; 5,64,230; 5,46,028

### Practice Exercise 1.2

1. (a) Two lakh forty seven thousand seven hundred forty five (b) Thirty-two lakh thirty five thousand three hundred sixty seven (c) Eighteen lakh fifty six thousand nine hundred eighty nine (d) Four crore forty five lakh thirty six thousand one hundred eighty eight (e) Two crore seventy five lakh forty four thousand six hundred sixty six (f) Fifty five crore forty five lakh seventy eight thousand one hundred thirty five 2. (a) Two million four hundred fifty six thousand seven hundred fifty (b) Five million three hundred thousand seven hundred forty five (c) Seventy million seven hundred thousand one hundred eighty six (d) Thirty eight million two hundred fifty seven thousand one hundred ninety eight (e) Three hundred twenty four million four hundred fifty six thousand three hundred forty six (f) Three hundred fifty six million five hundred sixty seven thousand one hundred seventy eight 3. (a) 5,157,482 (b) 34,450,000 (c) 350,630,250 (d) 68,890,502 (e) 50,563,743 4. (a) 37,81,502 (b) 5,51,75,006 (c) 3,72,10,300 (d) 10,00,375 (e) 45,67,21,040 (f) 2,76,66,895 5. (a) 215,326 (b) 4,604,765 (c) 6,435,176 (d) 3,546,111 (e) 521,524,365 (f) 382,434,670 6. (a) 10 (b) 99,999 (c) 10 (d) 99,99,999 (e) 1000 (f) 100

### Practice Exercise 1.3

1. (a)  $4 \times 10,000 = 40,000$  (b)  $4 \times 1,00,000 = 4,00,000$  (c)  $5 \times 10,00,00,000 = 50,00,00,000$  (d)  $9 \times 100 = 900$  (e)  $0 \times 10,000 = 0$  (f)  $2 \times 1,000 = 2,000$  2. (a)  $3,00,00,000 + 30,00,000 + 4,00,000 + 60,000 + 2,000 + 800 + 0 + 1$  (b)  $50,00,00,000 + 3,00,00,000 + 10,00,000 + 0 + 30,000 + 4,000 + 600 + 10 + 2$  (c)  $70,00,000, + 4,00,000 + 30,000 + 6,000 + 200 + 40 + 2$  (d)  $40,00,00,000, + 7,00,00,000 + 30,00,000 + 6,00,000 + 0 + 2,000 + 100 + 0 + 5$  (e)  $60,00,00,000 + 8,00,00,000 + 30,00,00,000 + 5,00,000 + 10,000 + 7,000 + 800 + 90 + 3$  (f)  $8,00,00,000 + 70,00,000 + 8,00,000 + 40,000 + 5,000 + 600 + 30 + 1$

$$\begin{array}{r} 3. \quad 8,00,00,000 \\ - \quad 80,000 \\ \hline 7,99,20,000 \end{array}$$

$$\begin{array}{r} 4. \quad 5,00,000 \\ \quad 5,000 \\ + \quad 5 \\ \hline 5,05,005 \end{array}$$

$$\begin{array}{r} 5. \quad 40,000 \\ \quad \times 4 \\ \hline 1,60,000 \end{array}$$

$$\begin{array}{r} 6. \quad (a) \quad 2,00,00,000 \\ \quad 60,00,000 \\ \quad 5,00,000 \\ \quad 40,000 \\ \quad 3,000 \\ \quad 200 \\ \quad 50 \\ \quad + \quad 1 \\ \hline 2,65,43,251 \end{array}$$

$$\begin{array}{r} (b) \quad 30,00,00,000 \\ \quad 30,00,000 \\ \quad 20,000 \\ \quad 500 \\ \quad + \quad 5 \\ \hline 30,30,20,505 \end{array}$$

$$\begin{array}{r} (c) \quad 40,00,000 \\ \quad 8,00,000 \\ \quad 10,000 \\ \quad 3000 \\ \quad 500 \\ \quad 40 \\ \quad + \quad 7 \\ \hline 48,13,547 \end{array}$$

$$\begin{array}{r} (d) \quad 5,00,00,000 \\ \quad 70,00,000 \\ \quad 50,000 \\ \quad 300 \\ \quad + \quad 1 \\ \hline 5,70,50,301 \end{array}$$

$$\begin{array}{r} (e) \quad 60,00,00,000 \\ \quad 60,00,000 \\ \quad 30,000 \\ \quad 500 \\ \quad + \quad 9 \\ \hline 60,60,30,509 \end{array}$$

$$\begin{array}{r} (f) \quad 80,00,000 \\ \quad 6,00,000 \\ \quad 60,000 \\ \quad 4,000 \\ \quad 50 \\ \quad + \quad 8 \\ \hline 86,64,058 \end{array}$$

### Practice Exercise 1.4

1. (a)  $25,64,512 - 1 \rightarrow 25,64,511$  (b)  $8,35,46,115 - 1 \rightarrow 8,35,46,114$  (c)  $34,12,36,402 - 1 \rightarrow 34,12,36,401$  2. (a)  $26,12,015 + 1 \rightarrow 26,12,016$  (b)  $5,36,12,816 + 1 \rightarrow 5,36,12,817$  (c)  $21,24,81,361 + 1 \rightarrow 21,24,81,362$  3. (a)  $>$  (b)  $<$  (c)  $>$  (d)  $=$  (e)  $=$  (f)  $=$
4. (a) 14,36,750; 14,36,912; 21,19,116; 21,72,415  
 (b) 6,14,22,968; 6,22,96,141; 6,28,96,142; 6,96,28,142  
 (c) 2,10,04,508; 2,10,05,408; 2,10,40,505; 2,10,50,408  
 (d) 23,25,39,004; 23,32,81,004; 23,42,85,004; 23,43,84,001

5. (a) 28,24,960; 28,24,690; 28,24,096; 28,24,069  
 (b) 5,10,41,808; 5,10,40,803; 5,10,14,880; 5,10,14,808  
 (c) 6,96,32,143; 5,34,25,896; 2,39,72,858; 1,31,40,110  
 (d) 29,22,96,531; 29,22,96,153; 29,22,96,132; 29,22,69,153

### Practice Exercise 1.5

1. (a) smallest number = 1,03,458; greatest number = 8,54,310  
 (b) smallest number = 1,04,578; greatest number = 8,75,410  
 2. (a) smallest number = 20,34,568; greatest number = 86,54,320  
 (b) smallest number = 10,23,569; greatest number = 96,53,210  
 3. (a) smallest number = 1,02,34,578; greatest number = 8,75,43,210  
 (b) smallest number = 1,02,56,789; greatest number = 9,87,65,210  
 4. Arranging the digits in descending order = 8, 7, 3, 3, 1, 0

Here the greatest digit is 8, so we shall repeat it to make the greatest number = 88,73,310

Arranging the digits in ascending order = 0, 1, 3, 3, 7, 8

We put 0 at second place from left so, 1, 0, 3, 3, 7, 8

Here the smallest digit is 0, so we shall repeat it to make the smallest number = 10,03,378

### Practice Exercise 1.6

1. (a) 26,750 (b) 5,46,210 (b) 4,960 (d) 15,96,810 2. (a) 23,400 (b) 8,85,500 (c) 63,600 (d) 45,81,500 3. (a) 84,000 (b) 4,25,000 (c) 5,06,000 (d) 28,97,000 4. (a) 36,000 (b) 5,70,000 (c) 3,90,000 (d) 45,40,000 5. (a) 2,00,000 (b) 4,00,000 (c) 5,00,000 (d) 3,00,000 6. (a) 6,00,00,000 (b) 4,00,00,000 (c) 29,00,00,000

### Mental math zone

1. (a) 10 (b) 10 (c) 100 (d) 100 (e) 9999999 (f)  $234,080,175 + 1 = 234,080,176$  (g) predecessor 2. (a)  $7 \times 1,00,000 = 7,00,000$   
 (b)  $3 \times 1,000,000 = 3,000,000$  (c)  $8 \times 10,00,000 = 80,00,000$   
 (d)  $3 \times 1 = 3$  3. (a) 237,242 (b) 56,00,833 (c) 3,843,295  
 (d) 4,47,86,106 (e) 743,29,137 4. (a) < (b) > (c) > (d) >  
 5. (a)  $29,32,738 - 1 = 29,32,737$  (b)  $5,43,10,009 - 1 = 5,43,10,008$   
 6. (a)  $6,32,104 + 1 = 6,32,105$  (b)  $9,36,10,232 = 9,36,10,233$   
 7. (a) smallest number = 2,034,568; greatest number = 8,654,320  
 (b) smallest number = 2,035,678; greatest number = 8,765,320  
 (c) smallest number = 2,345,679; greatest number = 9,765,432  
 8. 16,00,00,000 km.

### Multiple Choice Questions (MCQs)

1. lakh 2. 6,07,83,054 3. 10 4. millions

## Activity Wizard

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(a) Mizoram (b) Maharastra (c) 888,573; 1,347,668; 2,166,788; 3,199,203; 6,077,900; 76,210,007; 82,998,509; 96,878,627

(d)	<b>States</b>	<b>Andra Pradesh</b>	<b>Bihar</b>	<b>Goa</b>	<b>Himachal Pradesh</b>
	<b>Population</b>	7,62,10,007	8,29,98,509	13,47,668	60,77,900
	<b>States</b>	Maharastra	Manipur	Mizoram	Tripura
	<b>Population</b>	9,68,78,627	21,66,788	8,88,573	3,199,203

(e) Himachal Pradesh (f) 76,210,007

## Practice Exercise 2.1

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1. (a) VIII (b) XIV (c) XXV (d) XXIX (e) XXX (f) XXXVIII (g) XL (h) XLII (i) LIII (j) LXI (k) LXXVIII (l) XCV 2. (a) 7 (b) 12 (c) 25 (d) 32 (e) 90 (f) 62 (g) 64 (h) 79 (i) 75 (j) 65 (k) 99 (l) 93

## Practice Exercise 2.2

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1. (a)  $38 = 30 + 8 = XXX + VIII = XXXVIII$  (b)  $92 = 90 + 2 = XC + II = XCII$  (c)  $138 = 100 + 30 + 8 = C + XXX + VIII = CXXXVIII$  (d)  $380 = 300 + 80 = CCC + LXXX = CCCLXXX$  (e)  $612 = 600 + 12 = DC + XII = DCXII$  (f)  $1001 = 1000 + 1 = M + I = MI$  (g)  $891 = 800 + 91 = DCCC + XCI = DCCCXCI$  (h)  $600 = 500 + 100 = D + C = DC$  (i)  $87 = 50 + 30 + 7 = L + XXX + VII = LXXXVII$  (j)  $921 = 900 + 20 + 1 = CM + XX + I = CMXXI$

2. (a)  $2345 = 2000 + 300 + 45 = MM + CCC + XLV = MMCCCXLV$  (b)  $5634 = 5000 + 600 + 34 = \bar{V} + DC XXXIV = \bar{V}DCXXXIV$  (c)  $3578 = 3000 + 500 + 78 = MMM + D + LXXVIII = MMMDLXXVIII$  (d)  $6870 = 6000 + 800 + 70 = \bar{VI} + DCCC + LXX = \bar{VI}DCCCLXX$  (e)  $4361 = 4000 + 300 + 61 = \bar{IV} + CCC + LXI = \bar{IV}CCCLXI$  (f)  $23483 = 20000 + 400 + 83 = \bar{XXIII} + CD + LXXXIII = \bar{XXIII}CDLXXXIII$  (g)  $29750 = 29000 + 700 + 50 = \bar{XXIX} + DCC + L = \bar{XXIX}DCCL$  (h)  $20348 = 20000 + 300 + 48 = \bar{XX} + CCC + XLVIII = \bar{XX}CCCXLVIII$  (i)  $36003 = 36000 + 3 = \bar{XXXVI} + III = \bar{XXXVI}III$  (j)  $20608 = 20000 + 600 + 8 = \bar{XX} + DC + VIII = \bar{XX}DCVIII$  3.

(a)  $CIX = 100 + 9 = 109$  (b)  $LXX = 50 + 20 = 70$  (c)  $CDLXX = 400 + 70 = 470$  (d)  $MDLXV = 1500 + 65 = 1565$  (e)  $LXXVII = 70 + 7 = 77$  (f)  $CMXLIV = 900 + 40 + 4 = 944$  (g)  $MMCMXCIX = 2000 + 900 + 99 = 2999$  (h)  $MMCXXIII = 2000 + 100 + 23 = 2123$  (i)  $MMMDLXL = 3000 + 600 + 40 = 3640$  4. (a)  $\bar{LXXIX} = 70,000 + 9 = 70009$  (b)  $\bar{XCLVI} = 10,000 + 100 + 50 + 6 = 10156$  (c)  $\bar{IVCMLIX} = 4,000 + 900 + 50 + 9 = 4959$  (d)  $\bar{XXIXDXIV} = 29000 + 500 + 14 = 29514$  (e)  $\bar{XCDXCXVI} = 90,000 + 600 + 90 + 6 = 90696$  (f)  $\bar{XVDCCXCIX} = 15,000 + 700 + 99 = 15,799$  (g)  $\bar{XCCXCI} = 10,000 + 200 + 91 = 10291$  (h)  $\bar{LIXDCXCIX} = 59,000 + 600 + 99$

= 59,699 (i)  $\overline{\text{VCDXLV}} = 5000 + 400 + 45 = 5445$  **5.** (a) numeral is multiplied by 1000 (b) V, L and D (c) three (d) I, X C, M

### Mental math zone

1.	Hindu Arabic	Roman	Hindu Arabic	Roman
	23	XXIII	159	CLIX
	65	LXV	800	DCCC
	87	LXXXVII	543	DXLIII

**2.** (a)  $\text{CCL} - \text{L} = 250 - 50 = 200 = \text{CC}$  (b)  $\text{LXX} + \text{XX} = 70 + 20 = 90 = \text{XCL}$  (c)  $\text{M} - \text{D} = 1000 - 500 = 500 = \text{D}$  (d)  $\text{CX} - \text{XXX} = 110 - 30 = 80 = \text{LXXX}$  **3.** Do yourself **4.** (a)  $>$  (b)  $>$  (c)  $<$  (d)  $>$  (e)  $>$  (f)  $>$  **5.** (a) False (b) True (c) False (d) True (e) False

### Multiple Choice Questions (MCQs)

**1.**  $50 + 10 + 5 = \text{LXV}$  **2.**  $100 + 90 + 6 = 196$  **3.** IL is meaningless **4.**  $\overline{\text{XLI}} \text{CCV} = 41,000 + 200 + 5 = 41205$  **5.**  $90 + 3 = 93$

### Practice Exercise 3.1

- 1.** (a) 
$$\begin{array}{r} 1\ 3\ 7\ 8\ 0 \\ + \quad \quad 2\ 0 \\ \hline 1\ 3\ 8\ 0\ 0 \end{array}$$
 (b) 
$$\begin{array}{r} 4\ 5\ 2\ 7\ 4 \\ + \quad 5\ 0\ 0\ 0 \\ \hline 5\ 0\ 2\ 7\ 4 \end{array}$$
 (c) 
$$\begin{array}{r} 3\ 6\ 7\ 8\ 4 \\ + \quad \quad 6\ 0\ 0 \\ \hline 3\ 7\ 3\ 8\ 4 \end{array}$$
- (d) 
$$\begin{array}{r} 2\ 8\ 7\ 6\ 5 \\ - 1\ 0\ 0\ 0\ 0 \\ \hline 1\ 8\ 7\ 6\ 5 \end{array}$$
 (e) 
$$\begin{array}{r} 5\ 7\ 6\ 7\ 8 \\ - \quad 5\ 0\ 0\ 0 \\ \hline 5\ 2\ 6\ 7\ 8 \end{array}$$
 (f) 
$$\begin{array}{r} 1\ 2\ 8\ 7\ 6 \\ - \quad \quad 4\ 0\ 0 \\ \hline 1\ 2\ 4\ 7\ 6 \end{array}$$
- 2.** (a) 
$$\begin{array}{r} \boxed{1}\ \boxed{1}\ \boxed{1}\ \boxed{1} \\ 3\ 0\ 5\ 2\ 6 \\ 1\ 5\ 0\ 4\ 4 \\ + 3\ 6\ 7\ 4\ 3 \\ \hline 8\ 2\ 3\ 1\ 3 \end{array}$$
 (b) 
$$\begin{array}{r} \boxed{1}\ \boxed{1}\ \boxed{1}\ \boxed{1} \\ 3\ 7\ 7\ 7\ 2 \\ \quad 1\ 6\ 6\ 4 \\ + \quad \quad 4\ 5\ 8 \\ \hline 3\ 9\ 8\ 9\ 4 \end{array}$$
 (c) 
$$\begin{array}{r} \boxed{1}\ \boxed{1}\ \boxed{1}\ \boxed{1} \\ 5\ 2\ 8\ 3\ 2 \\ 3\ 5\ 2\ 3\ 7 \\ + \quad 1\ 1\ 7\ 4 \\ \hline 8\ 9\ 2\ 4\ 3 \end{array}$$
- 3.** (a) 
$$\begin{array}{r} 6\ 5\ 7\ 8\ 8 \\ - 4\ 4\ 9\ 6\ 3 \\ \hline 2\ 0\ 8\ 2\ 5 \end{array}$$
 (b) 
$$\begin{array}{r} 9\ 5\ 4\ 0\ 6 \\ - 2\ 6\ 9\ 1\ 5 \\ \hline 6\ 8\ 4\ 9\ 1 \end{array}$$
 (c) 
$$\begin{array}{r} 6\ 7\ 0\ 0\ 8 \\ - 2\ 1\ 3\ 6\ 3 \\ \hline 4\ 5\ 6\ 4\ 5 \end{array}$$
- 4.** (a) 
$$\begin{array}{r} \boxed{1} \\ 2\ 6\ 1\ 7\ 2 \\ + 4\ 3\ 1\ 4\ 6 \\ \hline 6\ 9\ 3\ 1\ 8 \end{array}$$
 (b) 
$$\begin{array}{r} 6\ 1\ 2\ 2\ 4\ 5 \\ + 3\ 2\ 7\ 6\ 5\ 1 \\ \hline 9\ 3\ 9\ 8\ 9\ 1 \end{array}$$
 (c) 
$$\begin{array}{r} \boxed{1} \\ 5\ 5\ 3\ 1\ 7\ 6 \\ + 4\ 1\ 6\ 4\ 5\ 3 \\ \hline 9\ 6\ 9\ 6\ 2\ 9 \end{array}$$

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

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

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

8. Mr Sharma had in his account  $= ₹\ 3\ 9\ 8\ 1\ 75$   
 Mr Sharma deposit in his account  $= + ₹\ 2\ 3\ 4\ 2\ 81$   
 Mr Sharma had total amount in has account  $= ₹\ 6\ 3\ 2\ 4\ 56$

So, Mr Sharma had total amount in his account is ₹ 6,32,456

9. The total population of a town  $= 4\ 0\ 0\ 0\ 0\ 0$   
 The number of males  $= - 2\ 6\ 8\ 2\ 8\ 0$   
 The number of females  $= 1\ 3\ 1\ 7\ 2\ 0$

So, the number of females population is 1,31,720

### Practice Exercise 3.2

1. (a) 
$$\begin{array}{r} 3\ 1\ 7\ 6\ 5\ 0\ 2 \\ + 4\ 8\ 2\ 3\ 2\ 7\ 3 \\ \hline 7\ 9\ 9\ 9\ 7\ 7\ 5 \end{array}$$
 (b) 
$$\begin{array}{r} 1 \\ 5\ 2\ 3\ 5\ 8\ 7\ 2 \\ + 4\ 9\ 4\ 2\ 1\ 2\ 1 \\ \hline 10\ 1\ 7\ 7\ 9\ 9\ 3 \end{array}$$

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

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

2. (a) 
$$\begin{array}{r} \phantom{0}1\phantom{0}1\phantom{0}1\phantom{0}1\phantom{0}1\phantom{0}1 \\ \phantom{00}2\phantom{0}5\phantom{0}7\phantom{0}3 \\ 3\phantom{0}9\phantom{0}8\phantom{0}6\phantom{0}6\phantom{0}2\phantom{0}3 \\ + 4\phantom{0}8\phantom{0}3\phantom{0}5\phantom{0}7\phantom{0}9\phantom{0}6 \\ \hline 8\phantom{0}8\phantom{0}2\phantom{0}5\phantom{0}9\phantom{0}9\phantom{0}2 \end{array}$$
- (b) 
$$\begin{array}{r} \phantom{0}1\phantom{0}1\phantom{0}1\phantom{0}1\phantom{0}1\phantom{0}1 \\ \phantom{00}6\phantom{0}7\phantom{0}6\phantom{0}3\phantom{0}2 \\ 3\phantom{0}8\phantom{0}6\phantom{0}5\phantom{0}7\phantom{0}9\phantom{0}6 \\ + 5\phantom{0}7\phantom{0}9\phantom{0}6\phantom{0}5\phantom{0}2\phantom{0}3\phantom{0}1 \\ \hline 6\phantom{0}1\phantom{0}8\phantom{0}9\phantom{0}8\phantom{0}6\phantom{0}5\phantom{0}9 \end{array}$$
- (c) 
$$\begin{array}{r} \phantom{0}1\phantom{0}1\phantom{0}1 \\ 3\phantom{0}1\phantom{0}5\phantom{0}2\phantom{0}0\phantom{0}4\phantom{0}8\phantom{0}1 \\ + 4\phantom{0}3\phantom{0}5\phantom{0}3\phantom{0}9\phantom{0}6\phantom{0}1\phantom{0}8 \\ \hline 7\phantom{0}5\phantom{0}0\phantom{0}6\phantom{0}0\phantom{0}0\phantom{0}9\phantom{0}9 \end{array}$$
- (d) 
$$\begin{array}{r} \phantom{0}1\phantom{0}1\phantom{0}1\phantom{0}1\phantom{0}2\phantom{0}1 \\ 5\phantom{0}0\phantom{0}9\phantom{0}3\phantom{0}4\phantom{0}2\phantom{0}1 \\ + 7\phantom{0}3\phantom{0}2\phantom{0}7\phantom{0}1\phantom{0}8\phantom{0}9 \\ \hline 1\phantom{0}2\phantom{0}4\phantom{0}2\phantom{0}0\phantom{0}6\phantom{0}1\phantom{0}0 \end{array}$$

### Practice Exercise 3.3

1. 
$$\begin{array}{r} \phantom{0}1\phantom{0}1\phantom{0}1 \\ 3\phantom{0}7\phantom{0}6\phantom{0}5\phantom{0}4\phantom{0}3\phantom{0}2 \\ + \phantom{00}4\phantom{0}2\phantom{0}5\phantom{0}8\phantom{0}6 \\ \hline 3\phantom{0}8\phantom{0}0\phantom{0}8\phantom{0}0\phantom{0}1\phantom{0}8 \end{array}$$

2. Reena bought a plot of land for = ₹ 5 3 2 4 0 0  
 Reena spent construction caterials = ₹ 7 5 3 7 2 1  
 Reena spent on labour = + ₹ 3 0 0 7 3 9  
 Total money spent by reena = ₹ 15 8 6 8 6 0  
 So, the total money spent by Reena is ₹ 15, 86, 860.

3. The first condidates got votes = 
$$\begin{array}{r} \phantom{0}1\phantom{0}1\phantom{0}2\phantom{0}2\phantom{0}1\phantom{0}3 \\ 2\phantom{0}7\phantom{0}2\phantom{0}4\phantom{0}7\phantom{0}3\phantom{0}8 \\ 3\phantom{0}5\phantom{0}5\phantom{0}4\phantom{0}9\phantom{0}3\phantom{0}6 \\ + 4\phantom{0}3\phantom{0}7\phantom{0}5\phantom{0}6\phantom{0}9 \\ 1\phantom{0}4\phantom{0}5\phantom{0}6\phantom{0}0\phantom{0}7 \\ \hline 6\phantom{0}8\phantom{0}6\phantom{0}2\phantom{0}8\phantom{0}5\phantom{0}0 \end{array}$$
  
 The Second condidates got votes =  
 The Third condidates got votes = +  
 The votes which were not polled =  
 Total votes were there in all =  
 So, the total were there in all is 68,62,850.

4. Number of boys appeared for an examination = 
$$\begin{array}{r} \phantom{0}1\phantom{0}1 \\ 3\phantom{0}7\phantom{0}5\phantom{0}1\phantom{0}6\phantom{0}5\phantom{0}0 \\ + 2\phantom{0}8\phantom{0}4\phantom{0}2\phantom{0}7\phantom{0}2\phantom{0}5 \\ \hline 6\phantom{0}5\phantom{0}9\phantom{0}4\phantom{0}3\phantom{0}7\phantom{0}5 \end{array}$$
  
 Number of girls appeared for an examination = +  
 Total number of students appeared for the examination =  
 So, the number of students appeared for the examination is 65,94,375

5. A factory produced toys in Ist year = 
$$\begin{array}{r} \phantom{0}1\phantom{0}1\phantom{0}1 \\ 5\phantom{0}4\phantom{0}6\phantom{0}4\phantom{0}7\phantom{0}5 \\ + 2\phantom{0}4\phantom{0}7\phantom{0}3\phantom{0}6\phantom{0}7 \\ \hline 7\phantom{0}9\phantom{0}3\phantom{0}8\phantom{0}4\phantom{0}2 \end{array}$$
  
 A factory produced toys in IInd year = +  
 Total toys produce in these two years =  
 So, the total toys produce in these two years in 7,93,842



			1	1	1	1
6. A jeweller bought gold worth	=	₹	3	5	0	6 5 0
A jeweller bought diamonds worth	=	₹	5	7	4	4 5 0
A jeweller bought precious stones	=	+ ₹	4	4	5	6 7 8
Total money spend by jeweller	=		₹	1	3	7 0 7 7 8

			1	1	1			
7. A chocolate factory produced chocolates in January	=	2	4	4	5	4	3	0
A chocolate factory produced chocolates in February	=	3	2	2	4	7	0	0
A chocolate factory produced chocolates in March	=	+ 1	2	2	0	2	7	5
Total chocolate produced in three month	=		6	8	9	0	4	0
Total chocolate produced in three month is			68,90,405					

			1	1	1			
8. The difference between two numbers	=	3	4	5	0	1	7	2
The smaller number	=	+ 2	5	2	8	9	7	8
The biggest number	=		5	9	7	9	1	5
So, the biggest number is			59,79,150					

### Practice Exercise 3.4

1. (a)	<div> <div>6 6 4 7 8 1 3</div> <div>- 3 5 4 5 3 1 0</div> <div>3 1 0 2 5 0 3</div> </div>	(b)	<div> <div>8 8 5 6 4 2 5</div> <div>- 6 6 5 6 3 1 3</div> <div>2 2 0 0 1 1 2</div> </div>
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(c)	<div> <div>4 10 5 12</div> <div>7 3 4 2 5 0 6 2</div> <div>- 4 3 1 1 0 5 1 8</div> <div>3 0 3 1 4 5 4 4</div> </div>	(d)	<div> <div>4 11 10 17 16 14</div> <div>5 2 1 8 7 4 6 3</div> <div>- 1 4 8 9 9 7 4 2</div> <div>3 7 2 8 7 7 2 1</div> </div>
-----	--	-----	---

2. (a)	<div> <div>7 4 3 6 8 7 3</div> <div>- 4 3 8 9 6 5 8</div> <div>3 0 4 7 2 1 5</div> </div>	(b)	<div> <div>6 8 7 6 5 0 1 3</div> <div>- 2 1 6 3 2 4 5 6</div> <div>4 7 1 3 2 5 5 7</div> </div>
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3. (a)	<div> <div>4 12 10 8 17</div> <div>5 3 0 9 7 2 8</div> <div>- 2 4 1 0 8 1 7</div> <div>2 8 9 8 9 1 1</div> </div>	(b)	<div> <div>7 16 4 9 12 12</div> <div>8 6 5 0 3 2 1</div> <div>- 5 8 0 1 8 4 0</div> <div>2 8 4 8 4 8 1</div> </div>
--------	---	-----	---

(c)	<div> <div>8 11 9 10</div> <div>6 9 2 0 0 2 0</div> <div>- 3 5 9 4 2 1 0</div> <div>3 3 2 5 8 1 0</div> </div>	(d)	<div> <div>4 11 13 12 12</div> <div>9 5 2 4 3 2 0</div> <div>- 7 0 3 9 8 4 0</div> <div>2 4 8 4 4 8 0</div> </div>
-----	--	-----	--

### Practice Exercise 3.5

$$\begin{array}{r}
 \boxed{4} \boxed{12} \boxed{7} \boxed{10} \boxed{11} \boxed{4} \boxed{9} \boxed{10} \\
 1. \text{ The sum of two numbers is} \quad = 5 \ 2 \ 8 \ 1 \ 1 \ 5 \ 0 \ 0 \\
 \text{If the one number is} \quad = -3 \ 5 \ 6 \ 9 \ 9 \ 2 \ 9 \ 7 \\
 \text{So, the second number is} \quad = \underline{1 \ 7 \ 1 \ 1 \ 2 \ 2 \ 0 \ 3}
 \end{array}$$

So, the second number is 1,71,12,203

2. What should be added to 4,80,78,875 to get 6, 55, 55, 555

$$\begin{array}{r}
 \boxed{5} \boxed{15} \boxed{4} \boxed{14} \boxed{14} \boxed{14} \boxed{15} \\
 6 \ 5 \ 5 \ 5 \ 5 \ 5 \ 5 \ 5 \\
 - 4 \ 8 \ 0 \ 7 \ 8 \ 8 \ 7 \ 5 \\
 \hline
 1 \ 7 \ 4 \ 7 \ 6 \ 6 \ 8 \ 0
 \end{array}$$

So, 1,74,76,680 be added to get 6,55,55,555

$$\begin{array}{r}
 \boxed{6} \boxed{12} \\
 3. \text{ The population of city B} \quad = 1 \ 2 \ 9 \ 4 \ 7 \ 2 \ 5 \ 1 \\
 \text{The population of city A} \quad = -1 \ 2 \ 4 \ 4 \ 5 \ 7 \ 2 \ 0 \\
 \hline
 \quad \quad \quad 5 \ 0 \ 1 \ 5 \ 3 \ 1
 \end{array}$$

City B has more population 5,01,531

$$\begin{array}{r}
 \boxed{6} \boxed{10} \\
 4. \text{ Number of students appeared for the maths olympiad} = 3 \ 6 \ 8 \ 5 \ 7 \ 0 \ 0 \\
 \text{Number of boy appeared for the maths olympiad} = -2 \ 4 \ 3 \ 2 \ 1 \ 5 \ 0 \\
 \text{Number of girls appeared for the examination} = \underline{1 \ 2 \ 5 \ 3 \ 5 \ 5 \ 0} \\
 \text{So, the number of girls appeared for the math olympiad is 12,53,550.}
 \end{array}$$

$$\begin{array}{r}
 \boxed{8} \boxed{12} \quad \boxed{4} \boxed{10} \\
 5. \text{ The larger number} \quad = 9 \ 2 \ 5 \ 5 \ 5 \ 0 \ 9 \ 5 \\
 \text{The difference of two number} \quad = -4 \ 4 \ 0 \ 3 \ 3 \ 1 \ 5 \ 2 \\
 \text{Smaller number} \quad = \underline{4 \ 8 \ 5 \ 2 \ 1 \ 9 \ 4 \ 3} \\
 \text{So, the smaller number is 4,85,21,943}
 \end{array}$$

### Practice Exercise 3.6

Arrange in columns and subtract the following. Check your answer.

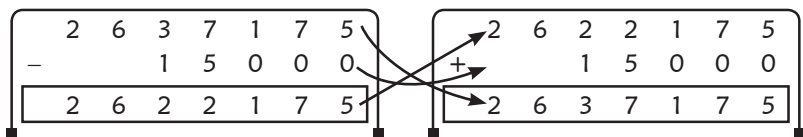
(a) 24,23,350 from 38,48,780

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

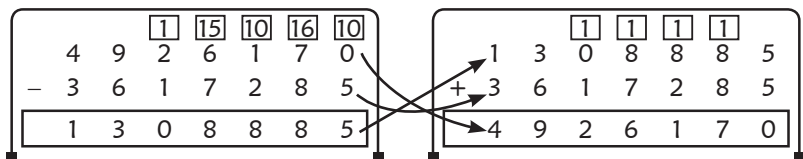
(b) 55,25,250 from 62,70,458

$$\begin{array}{r}
 \begin{array}{r}
 \boxed{5} \boxed{12} \boxed{6} \boxed{10} \\
 6 \ 2 \ 7 \ 0 \ 4 \ 5 \ 8 \\
 - 5 \ 5 \ 2 \ 5 \ 2 \ 5 \ 0 \\
 \hline
 7 \ 4 \ 5 \ 2 \ 0 \ 8
 \end{array}
 \quad
 \begin{array}{r}
 \boxed{1} \quad \boxed{1} \\
 7 \ 4 \ 5 \ 2 \ 0 \ 8 \\
 + 5 \ 5 \ 2 \ 5 \ 2 \ 5 \ 0 \\
 \hline
 6 \ 2 \ 7 \ 0 \ 4 \ 5 \ 8
 \end{array}
 \end{array}$$

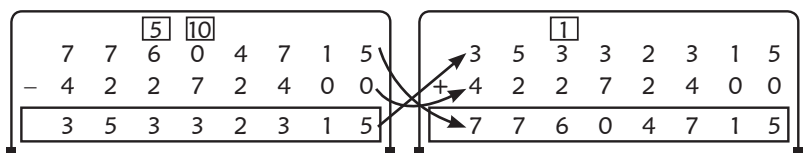
(c) 15,000 from 26,37,175



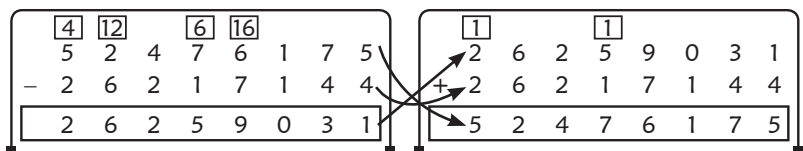
(d) 36,17,285 from 49,26,170



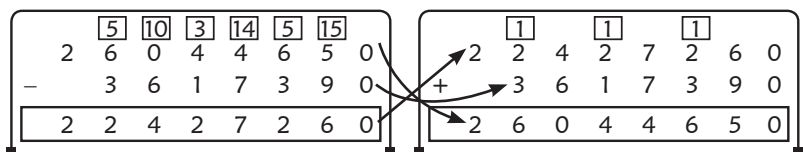
(e) 4,22,72,400 from 7,76,04,715



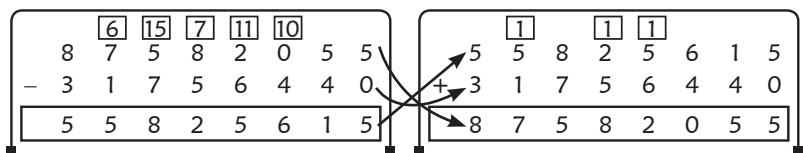
(f) 2,62,17,144 from 5,24,76,175



(g) 36,17,390 from 2,60,44,650



(h) 3,17,56,440 from 8,75,82,055



### Mental math zone

(a) 1 (b) 4,28,138 + 6,17,235 (c) 3,42,20,628 (d) 4,23,560 + 26,291 + 3,58,613 (e) 67,189 (f) 3,428 (g) 580 (h) 1,00,000 (i) 54,567 (j) 55,022 (k) 6,01,847 (l) 6,03,678

### Multiple Choice Questions (MCQs)

1. 5,37,103 2. 2,86,845 3. 1,10,997 4. subtrahend

# Activity Wizard

(a) 4376 (b) 1169

## Practice Exercise 4.1

1. (a) 
$$\begin{array}{r} \overset{5}{3} \overset{2}{7} \overset{4}{2} 5 \\ \times 8 \\ \hline 29800 \end{array}$$

(b) 
$$\begin{array}{r} \overset{1}{1} \overset{1}{8} \overset{1}{4} 5 \\ \times 34 \\ \hline 7380 \\ + 5535 \times \\ \hline 62730 \end{array}$$

(c) 
$$\begin{array}{r} 5148 \\ \times 20 \\ \hline 0000 \\ + 10296 \times \\ \hline 102960 \end{array}$$

(d) 
$$\begin{array}{r} 2005 \\ \times 225 \\ \hline 10025 \\ 4010 \times \\ + 4010 \times \times \\ \hline 451125 \end{array}$$

(e) 
$$\begin{array}{r} \overset{1}{2} \overset{1}{2} \overset{2}{4} 5 \\ \times 440 \\ \hline 0000 \\ 8580 \times \\ + 8580 \times \times \\ \hline 943800 \end{array}$$

(f) 
$$\begin{array}{r} \overset{1}{3} \overset{1}{7} \overset{2}{8} 4 \\ \times 125 \\ \hline 18920 \\ 7568 \times \\ + 3784 \times \times \\ \hline 473000 \end{array}$$

2. (a)  $254 \div 8$

$$\begin{array}{r} 8 \overline{) 254} \left( 31 \right. \\ \underline{-24} \phantom{0} \\ 14 \\ \underline{-8} \\ 6 \end{array}$$

Quotient = 31

Remainder = 6

(b)  $3545 \div 5$

$$\begin{array}{r} 5 \overline{) 3545} \left( 709 \right. \\ \underline{-35} \phantom{0} \\ 45 \\ \underline{-45} \\ 0 \end{array}$$

Quotient = 709

Remainder = 0

(c)  $7324 \div 62$

$$\begin{array}{r} 62 \overline{) 7324} \left( 118 \right. \\ \underline{-62} \phantom{0} \\ 112 \\ \underline{-62} \phantom{0} \\ 504 \\ \underline{-496} \\ 8 \end{array}$$

Quotient = 118

Remainder = 8

(d)  $8888 \div 88$

$$\begin{array}{r} 88 \overline{) 8888} \left( 101 \right. \\ \underline{-88} \phantom{0} \\ 88 \\ \underline{-88} \\ 0 \end{array}$$

Quotient = 101

Remainder = 0

3. One packet contains hankies = 135

225 packets contain hankies =  $135 \times 225$

$$\begin{array}{r} \overset{1}{1} \overset{2}{3} \overset{1}{5} \\ \times 225 \\ \hline 675 \\ 270 \times \\ + 270 \times \times \\ \hline 30375 \end{array}$$

So, 225 packets contain 30,375 hankies.

4. 98 kilograms of wheat are filled in a sack

2345 sacks of wheat are filled  $= 2345 \times 98$

$$= \begin{array}{r} \begin{array}{ccccccc} & & \boxed{3} & \boxed{4} & \boxed{4} & & \\ & \boxed{2} & \boxed{3} & \boxed{4} & & & \\ 2 & 3 & 4 & 5 & & & \\ & & & & \times & 9 & 8 \\ \hline & 1 & 8 & 7 & 6 & 0 & \\ +2 & 1 & 1 & 0 & 5 & \times & \\ \hline \boxed{2} & \boxed{2} & \boxed{9} & \boxed{8} & \boxed{1} & \boxed{0} & \end{array} \end{array}$$

So, 229810 kilograms of wheat are filled in 2345 sacks.

5. Raman saves in one month  $= ₹ 2525$

Raman saves in 23 months  $= ₹ 2525 \times 23$

$$= \begin{array}{r} \begin{array}{ccccccc} & & \boxed{1} & & & \boxed{1} & \\ & \boxed{1} & & & \boxed{1} & & \\ 2 & 5 & 2 & 5 & & & \\ & & & & \times & 2 & 3 \\ \hline & 7 & 5 & 7 & 5 & & \\ + & 5 & 0 & 5 & 0 & \times & \\ \hline \boxed{5} & \boxed{8} & \boxed{0} & \boxed{7} & \boxed{5} & & \end{array} \end{array}$$

So, Raman saves in 23 months is ₹ 58,075

### Practice Exercise 4.2

1. (a)  $2492 \times 323 = 323 \times 2492$  (b)  $205 \times 4321 = 4321 \times 205$   
 (c)  $5052 \times 257 = 257 \times 5052$  (d)  $3785 \times 1 = 3785$  (e)  $1 \times 1301 = 1301$   
 (f)  $1050 \times 0 = 0$  (g)  $0 \times 346 = 0$  (h)  $1 \times 8288 = 8288$   
 (i)  $26 \times (100 + 73) = (26 \times 100) + (26 \times 73)$  (j)  $324 \times (1000 + 27) = (324 \times 1000) + (324 \times 27)$   
 (k)  $157 \times (741 \times 309) = (157 \times 741) \times 309$  (l)  $642 \times (205 \times 379) = (642 \times 205) \times 379$
2. (a) 31750 (b) 286540 (c) 658400 (d) 4278500 (e) 58065000  
 (f) 85846000
3. (a)  $2 \times 764 \times 5 = 2 \times 5 \times 764 = 10 \times 764 = 7640$   
 (b)  $5 \times 6891 \times 20 = 5 \times 20 \times 6891 = 100 \times 6891 = 689100$  (c)  $125 \times 842 \times 4 = 125 \times 4 \times 842 = 500 \times 842 = 421000$   
 (d)  $25 \times 289 \times 4 = 25 \times 4 \times 289 = 100 \times 289 = 28900$  (e)  $125 \times 2792 \times 8 = 125 \times 8 \times 2792 = 1000 \times 2792 = 2792000$   
 (f)  $500 \times 6257 \times 2 = 500 \times 2 \times 6257 = 1000 \times 6257 = 6257000$
4. (a)  $56 \times 103 = 56 \times (100 + 3) = 56 \times 100 + 56 \times 3 = 5600 + 168 = 5768$   
 (b)  $81 \times 95 = 81 \times (100 - 5) = 81 \times 100 - 81 \times 5 = 8100 - 405 = 7695$   
 (c)  $44 \times 174 = 44 \times (100 + 70 + 4) = 44 \times 100 + 44 \times 70 + 44 \times 4 = 4400 + 3080 + 176 = 7656$   
 (d)  $16 \times 3064 = (10 + 6) \times 3064 = 10 \times 3064 + 6 \times 3064 = 30640 + 18384 = 49024$   
 (e)  $63 \times 91 = 63 \times (100 - 9) = 63 \times 100 - 63 \times 9 = 6300 - 567 = 5733$   
 (f)  $72 \times 997 = 72 \times (1000 - 3) = 72 \times 1000 - 72 \times 3 = 72000 - 216 = 71784$

### Practice Exercise 4.3

1. (a) 
$$\begin{array}{r} \overset{5}{3} \overset{6}{6} \overset{4}{8} \overset{3}{5} 4 \\ \times 81 \\ \hline 36854 \\ + 294832 \times \\ \hline 2985174 \end{array}$$
- (b) 
$$\begin{array}{r} \overset{1}{3} \overset{1}{9} 8 0 7 \\ \times 12 \\ \hline 79614 \\ + 39807 \times \\ \hline 477684 \end{array}$$
- (c) 
$$\begin{array}{r} \overset{1}{1} \overset{2}{2} \overset{4}{5} 8 \\ \times 67 \\ \hline 84966 \\ + 72828 \times \\ \hline 813246 \end{array}$$
- (d) 
$$\begin{array}{r} \overset{1}{4} \overset{1}{3} \overset{3}{6} 0 9 \\ \times 253 \\ \hline 130827 \\ 218045 \times \\ + 87218 \times \times \\ \hline 11033077 \end{array}$$
- (e) 
$$\begin{array}{r} \overset{1}{5} \overset{2}{2} \overset{1}{1} \overset{3}{3} 5 \\ \times 633 \\ \hline 156405 \\ 156405 \times \\ + 312810 \times \times \\ \hline 33001455 \end{array}$$
- (f) 
$$\begin{array}{r} \overset{2}{3} \overset{1}{4} \overset{5}{9} \overset{2}{1} 2 \\ \times 136 \\ \hline 209472 \\ 104736 \times \\ + 34912 \times \times \\ \hline 4748032 \end{array}$$

2. (a) 1953000 (b) 1942864 (c) 4281600 (d) 1409400 (e) 2255968  
(f) 3623400

### Practice Exercise 4.4

1. One box contains apples = 136  
1230 boxes contain apples =  $136 \times 1230$   
1230 boxes contain apples = 167280 apples
2. One school has number of students = 1565  
530 school have number of students =  $1565 \times 530$   
= 829450  
So, the number of students in a district is 829450.
3. One carton has pens = 144  
Total cartons in the factory = 17608  
So, the total pens in the factory =  $17608 \times 144 = 25,35,552$  pens  
factory produces pens in a month = 2530900  
So, the more pens in the factory = 
$$\begin{array}{r} 253552 \\ - 2530900 \\ \hline 0004652 \end{array}$$
- So the more pens in the factory = 4652
4. Total number of copies of the book Gita = 1,27,125  
One book has number of pages = 229

$$\begin{aligned}\text{So, the total pages of the book} &= 1,27,125 \times 229 \\ &= 29111625\end{aligned}$$

$$\text{So, the total pages of the book} = 2,91,11,625$$

$$\text{5. Mr Sharma bought, chairs for the auditorium} = 12,346$$

$$\text{One chair cost} = ₹ 298$$

$$\begin{aligned}\text{The total cost of the chair} &= 12346 \times 298 \\ &= ₹ 3679108\end{aligned}$$

$$\text{So, the total cost of the chairs} = ₹ 3679108$$

$$\text{6. Mrs Gaur deposits in her bank account every month} = ₹ 38290$$

$$\text{Mrs Gaur deposits in her bank account 2 years} = ₹ 38290 \times 24$$

$$(1 \text{ years} = 12 \text{ months, } 2 \text{ years} = 2 \times 12 = 24 \text{ months})$$

$$= ₹ 918960$$

$$\text{So, Mrs Gaur deposits in her bank account 2 years} = ₹ 918960$$

### Practice Exercise 4.5

$$\text{1. (a) } 35426 \text{ (b) } 1 \text{ (c) } 0 \text{ (d) } 0 \text{ (e) } 1 \text{ (f) } 39521$$

$$\text{2. Divisor} = 33, \text{ quotient} = 26, \text{ remainder} = 12$$

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$= 33 \times 26 + 12$$

$$= 858 + 12 = 870$$

$$\text{3. Dividend} = 3699, \text{ Quotient} = 231, \text{ Remainder} = 3, \text{ Divisor} = ?$$

$$\text{Dividend} = \text{Divisor} \times \text{Quotient} + \text{Remainder}$$

$$3699 = \text{Divisor} \times 231 + 3$$

$$36999 - 3 = \text{Divisor} \times 231$$

$$3696 = \text{Divisor} \times 231$$

$$\text{Divisor} = \frac{3696}{231}$$

$$\text{Divisor} = 16$$

4.	Number	Quotient	Remainder
a.	$3175 \div 100$	31	75
b.	$22847 \div 1000$	22	847
c.	$56758 \div 10,000$	5	6758
d.	$75476 \div 1000$	75	476
e.	$917567 \div 10,000$	91	7567

### Practice Exercise 4.6

$$\text{1. (a) } 242961 \div 27$$

$$\text{(b) } 742016 \div 65$$

$$\begin{array}{r}
 \overline{27) \quad 2 \ 4 \ 2 \ 9 \ 6 \ 1} \quad (8998) \\
 \underline{- 2 \ 1 \ 6} \quad \downarrow \quad \downarrow \\
 \quad 2 \ 6 \ 9 \quad \downarrow \quad \downarrow \\
 \underline{- 2 \ 4 \ 3} \quad \downarrow \\
 \quad \quad 2 \ 6 \ 6 \quad \downarrow \\
 \underline{- 2 \ 4 \ 3} \quad \downarrow \\
 \quad \quad \quad 2 \ 3 \ 1 \\
 \underline{- 2 \ 1 \ 6} \\
 \quad \quad \quad \underline{1 \ 5}
 \end{array}$$

$$Q = 8998, \text{Re} = 15$$

$$(c) \ 898347 \div 12$$

$$\begin{array}{r}
 \overline{12) \quad 8 \ 9 \ 8 \ 3 \ 4 \ 7} \quad (74862) \\
 \underline{- 8 \ 4} \quad \downarrow \quad \downarrow \quad \downarrow \\
 \quad 5 \ 8 \quad \downarrow \quad \downarrow \quad \downarrow \\
 \underline{- 4 \ 8} \quad \downarrow \\
 \quad \quad 1 \ 0 \ 3 \quad \downarrow \\
 \underline{- 9 \ 6} \quad \downarrow \\
 \quad \quad \quad 7 \ 4 \quad \downarrow \\
 \underline{- 7 \ 2} \quad \downarrow \\
 \quad \quad \quad \quad 2 \ 7 \\
 \underline{- 2 \ 4} \\
 \quad \quad \quad \quad \underline{3}
 \end{array}$$

$$Q = 74862, \text{Re} = 3$$

$$(e) \ 388045 \div 223$$

$$\begin{array}{r}
 \overline{223) \quad 3 \ 8 \ 8 \ 0 \ 4 \ 5} \quad (1740) \\
 \underline{- 2 \ 2 \ 3} \quad \downarrow \quad \downarrow \quad \downarrow \\
 \quad 1 \ 6 \ 5 \ 0 \quad \downarrow \quad \downarrow \\
 \underline{- 1 \ 5 \ 6 \ 1} \quad \downarrow \quad \downarrow \\
 \quad \quad \quad 8 \ 9 \ 4 \\
 \underline{- 8 \ 9 \ 2} \\
 \quad \quad \quad \underline{2 \ 5}
 \end{array}$$

$$Q = 1740, \text{Re} = 25$$

$$(g) \ 360428 \div 400$$

$$\begin{array}{r}
 \overline{400) \quad 3 \ 6 \ 0 \ 4 \ 2 \ 8} \quad (901) \\
 \underline{- 3 \ 6 \ 0 \ 0} \quad \downarrow \\
 \quad \quad 4 \ 2 \ 8 \\
 \underline{- 4 \ 0 \ 0} \\
 \quad \quad \quad \underline{2 \ 8}
 \end{array}$$

$$\begin{array}{r}
 \overline{65) \quad 7 \ 4 \ 2 \ 0 \ 1 \ 6} \quad (11415) \\
 \underline{- 6 \ 5} \quad \downarrow \quad \downarrow \quad \downarrow \\
 \quad 9 \ 2 \quad \downarrow \quad \downarrow \quad \downarrow \\
 \underline{- 6 \ 5} \quad \downarrow \\
 \quad \quad 2 \ 7 \ 0 \quad \downarrow \\
 \underline{- 2 \ 6 \ 0} \quad \downarrow \\
 \quad \quad \quad 1 \ 0 \ 1 \quad \downarrow \\
 \underline{- 6 \ 5} \quad \downarrow \\
 \quad \quad \quad \quad 3 \ 6 \ 6 \\
 \underline{- 3 \ 2 \ 5} \\
 \quad \quad \quad \quad \underline{4 \ 1}
 \end{array}$$

$$Q = 11415, \text{Re} = 41$$

$$(d) \ 483297 \div 37$$

$$\begin{array}{r}
 \overline{37) \quad 4 \ 8 \ 3 \ 2 \ 9 \ 7} \quad (13062) \\
 \underline{- 3 \ 7} \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\
 \quad 1 \ 1 \ 3 \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\
 \underline{- 1 \ 1 \ 1} \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\
 \quad \quad 2 \ 2 \ 9 \quad \downarrow \\
 \underline{- 2 \ 2 \ 2} \quad \downarrow \\
 \quad \quad \quad 7 \ 7 \quad \downarrow \\
 \underline{- 7 \ 4} \\
 \quad \quad \quad \underline{3}
 \end{array}$$

$$Q = 13062, \text{Re} = 3$$

$$(f) \ 910050 \div 310$$

$$\begin{array}{r}
 \overline{310) \quad 9 \ 1 \ 0 \ 0 \ 5 \ 0} \quad (2935) \\
 \underline{- 6 \ 2 \ 0} \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\
 \quad 2 \ 9 \ 0 \ 0 \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\
 \underline{- 2 \ 7 \ 9 \ 0} \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\
 \quad \quad 1 \ 1 \ 0 \ 5 \quad \downarrow \\
 \underline{- 9 \ 3 \ 0} \quad \downarrow \\
 \quad \quad \quad 1 \ 7 \ 5 \ 0 \\
 \underline{- 1 \ 5 \ 5 \ 0} \\
 \quad \quad \quad \underline{2 \ 0 \ 0}
 \end{array}$$

$$Q = 2935, \text{Re} = 200$$

$$(h) \ 433112 \div 319$$

$$\begin{array}{r}
 \overline{319) \quad 4 \ 3 \ 3 \ 1 \ 1 \ 2} \quad (1357) \\
 \underline{- 3 \ 1 \ 9} \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\
 \quad 1 \ 1 \ 4 \ 1 \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\
 \underline{- 9 \ 5 \ 7} \quad \downarrow \quad \downarrow \quad \downarrow \quad \downarrow \\
 \quad \quad 1 \ 8 \ 4 \ 1 \quad \downarrow \\
 \underline{- 1 \ 5 \ 9 \ 5} \quad \downarrow \\
 \quad \quad \quad 2 \ 4 \ 6 \ 2 \\
 \underline{- 2 \ 2 \ 3 \ 3} \\
 \quad \quad \quad \underline{2 \ 2 \ 9}
 \end{array}$$



$$Q = 901, \text{ Re} = 28$$

(i)  $5208279 \div 47$

$$\begin{array}{r}
 47 \overline{) 5208279} \quad (110814) \\
 \underline{-47} \phantom{00000} \\
 50 \phantom{00000} \\
 \underline{-47} \phantom{00000} \\
 382 \phantom{00} \\
 \underline{-376} \phantom{00} \\
 67 \phantom{00} \\
 \underline{-47} \phantom{00} \\
 209 \phantom{0} \\
 \underline{188} \phantom{0} \\
 21
 \end{array}$$

$$Q = 110814, \text{ Re} = 21$$

$$Q = 1357, \text{ Re} = 229$$

(j)  $6567890 \div 5135$

$$\begin{array}{r}
 5135 \overline{) 6567890} \quad (1279) \\
 \underline{-5135} \phantom{000} \\
 14328 \phantom{0} \\
 \underline{-10270} \phantom{0} \\
 40589 \phantom{0} \\
 \underline{-35945} \phantom{0} \\
 46440 \phantom{0} \\
 \underline{-46215} \phantom{0} \\
 225
 \end{array}$$

$$Q = 1279, \text{ Re} = 225$$

(k)  $6728615 \div 2326$

$$\begin{array}{r}
 2326 \overline{) 6728615} \quad (2892) \\
 \underline{-4652} \phantom{000} \\
 20766 \phantom{0} \\
 \underline{-18608} \phantom{0} \\
 21581 \phantom{0} \\
 \underline{-20934} \phantom{0} \\
 6475 \phantom{0} \\
 \underline{-4652} \phantom{0} \\
 1823
 \end{array}$$

$$Q = 2892, \text{ Re} = 1823$$

(l)  $7872879 \div 2035$

$$\begin{array}{r}
 2035 \overline{) 7872879} \quad (3868) \\
 \underline{-6105} \phantom{000} \\
 17678 \phantom{0} \\
 \underline{-16280} \phantom{0} \\
 13987 \phantom{0} \\
 \underline{-12210} \phantom{0} \\
 17779 \phantom{0} \\
 \underline{-16280} \phantom{0} \\
 1499
 \end{array}$$

$$Q = 3868, \text{ Re} = 1499$$

**2.** Dividend = ?, Divisor = 235, Quotient = 18, Remainder = 32

$$\text{Dividend} = \text{Quotient} \times \text{Divisor} + \text{Remainder}$$

$$= 18 \times 235 + 32$$

$$= 4230 + 32$$

$$= 4262$$

**3.** 205 cartons packed organes = 667275

$$= 667275 \div 205$$

$$= 3255$$

**4.** The product of two number = 2037156

$$\text{One number} = 726$$

$$\text{and second number} = 2037156 \div 726$$

$$= 2806$$

So, the second number is 2806

5. 
$$\begin{array}{r} \overbrace{105100}^{621} \quad \overbrace{1699} \\ \underline{-621} \quad \downarrow \downarrow \downarrow \\ 4341 \quad \downarrow \\ \underline{-3726} \quad \downarrow \\ 6150 \quad \downarrow \\ \underline{-5589} \quad \downarrow \\ 5610 \\ \underline{-5589} \\ 21 \end{array}$$

So, the 21 is added

6. Fruit seller bought number of bananas = 1528094

The rotten bananas = 2774

So, the fresh bananas = 1525320

1525320 bananas packed in 925 basket

1 basket contain banana =  $1525320 \div 925$   
= 1649

So, 1 basket has 1649 bananas.

7. The total money collected from shareholders = ₹ 7568825

The value of each share = ₹ 425

Total number of shares =  $7568825 \div 425$   
= ₹ 17809

8. The product of two number = 127008

One number = 882

Other number =  $127008 \div 882$   
= 144

So, the second number is 144.

9. The cost of 125 colour TV sets = ₹ 3194375

Cost of 125 colour TV set =  $3194375 \div 125$   
= ₹ 25,555

So, the cost of one TV set is ₹ 25,555.

10. A stadium has a capacity of people = 52,650

People sit in each row = 975

Total seats in the stadium =  $52650 \div 975$   
= 54

So, the total seats in the stadium is 54.

### Mental math zone

- (a) 3600 (b) 4500 (c) 22500 (d) 12000 (e) 56000 (f) 25000 (g) 6400 (h) 2600 (i) 3600 (j) 7200 (k) 40000 (l) 18000 (m) 75 (n) 30 (o) 160 (p) 70 (q) 400 (r)  $Q = 62, R = 6$  (s) 525 (t)  $Q = 1266, R = 2$  (u)  $Q = 188, R = 8$  (v)  $Q = 928, R = 4$  (w)  $Q = 144, R = 4$  (x)  $Q = 244, R = 4$

### Multiple Choice Questions (MCQs)

1.  $245 \times 7000 = 245 \times 7 \times 1000 = 1715 \times 1000 = 1715000$   
2. Not possible 3.  $999 \times 90 = 999 \times 9 \times 10 = 8991 \times 10 = 89910$   
4. Divisor > Remainder 5. 897

### Practice Exercise 5.1

1. (a)  $8720 + 3164 \times 28 \div 7 - 2413$  (division first)  
 $= 8720 + 3164 \times 4 - 2413$  (multiplication next)  
 $= 8720 + 12654 - 2413$  (then addition)  
 $= 21374 - 2413$  (subtraction in last)  
 $= 18961$

- (b)  $270 \div 45 \times 3 + 900 - 135$  (division first)  
 $= 6 \times 3 + 900 - 135$  (multiplication next)  
 $= 18 + 900 - 135$  (then addition)  
 $= 918 - 135$  (subtraction in last)  
 $= 783$

- (c)  $144 \div 12 + 60 - 30$  of 2

**Step 1 :** First solve of  $= 144 \div 12 + 60 - 30 \times 2$  ( $30$  of  $2 = 30 \times 2$ )  
 $= 144 \div 12 + 60 - 60$

**Step 2 :** Then do the division  $= 144 \div 12 + 60 - 60$   
 $= 12 + 60 - 60$

**Step 3 :** Then do addition  $= 12 + 60 - 60$   
 $= 72 - 60$

**Step 4 :** Lastly do the subtraction  $= 72 - 60$   
 $= 12$

- (d)  $8,000 \div 5$  of  $2 + 13,00 - 400 \times 4$   
 $= 8000 \div 5 \times 2 + 13,000 - 400 \times 4$   
 $= 8000 \div 10 + 13,00 - 400 \times 4$   
 $= 800 + 13,00 - 1600$   
 $= 2100 - 1600$   
 $= 500$

- (e)  $90 + 121 \div 11 - 3$  of  $6 = 90 + 121 \div 11 - 3 \times 6$   
 $= 90 + 121 \div 11 - 18$   
 $= 90 + 11 - 18$   
 $= 101 - 18$   
 $= 83$

- (f)  $243 \div 3 + 184 - 30 \times 5$   
 $= 243 \div 3 + 184 - 30 \times 5$   
 $= 243 \div 3 + 184 - 30 \times 5$   
 $= 81 + 184 - 30 \times 5$

$$= 81 + 184 - 150$$

$$= 265 - 150$$

$$= 115$$

$$(g) 6000 \div 3 + 2000 \times 7 - 2000 \text{ of } 2$$

$$= 6000 \div 3 + 2000 \times 7 - 2000 \times 2$$

$$= 2000 + 2000 \times 7 - 4000$$

$$= 2000 + 14000 - 4000$$

$$= 16000 - 4000$$

$$= 12000$$

$$(h) 343 + 722 \times 100 \div 50 \text{ of } 2 - 463$$

$$= 343 + 722 \times 100 \div 50 \times 2 - 463$$

$$= 343 + 722 \times 100 \div 100 - 463$$

$$= 343 + 722 - 463$$

$$= 1065 - 463$$

$$= 602$$

$$(i) 80 \div 16 \times 3 + 2$$

$$= 5 \times 3 + 2$$

$$= 15 + 2$$

$$= 17$$

$$(j) 3\frac{1}{2} + 2\frac{2}{7} \times \frac{14}{16} \times 2\frac{1}{2} \div 2$$

$$= \frac{7}{2} + \frac{16}{7} \times \frac{14}{16} \times \frac{5}{2} \div 2 \quad (\text{Change in proper fraction})$$

$$= \frac{7}{2} + \frac{16}{7} \times \frac{14}{16} \times \frac{5}{2} \times \frac{1}{2} \quad (\text{Divide})$$

$$= \frac{7}{2} + \frac{5}{2}$$

$$\frac{7+5}{2} = \frac{12}{2} = 6$$

$$(k) 15 - 12 \div 4 + 4 \times 4$$

$$= 15 - 3 + 4 \times 4$$

$$= 15 - 3 + 16$$

$$= 31 - 3$$

$$= 28$$

$$(l) 85 \times 3 + 24 \div 4 - 108$$

$$= 85 \times 3 + 6 - 108$$

$$= 255 + 6 - 108$$

$$= 261 - 108$$

$$= 153$$

$$(m) 20 + 8 \times 2 - 12 + 27 \div 9 - 16 \div 2$$

$$= 20 + 8 \times 2 - 12 + 3 - 8 \quad (\text{Divide})$$

$$= 20 + 16 - 12 + 3 - 8 \quad (\text{multiply})$$

$$= 39 - 12 - 8 \text{ (Add)}$$

$$= 39 - 20$$

$$= 19$$

$$(n) 9 + 4 \times 3 - 3 + 1 - 16 \div 4 - 6$$

$$= 9 + 4 \times 3 - 3 + 1 - 4 - 6$$

$$= 9 + 12 - 3 + 1 - 4 - 6$$

$$= 22 - 13 = 9$$

2. (a)  $6 \div 3 + 6 = 8$  (b)  $3 \times 4 - 2 = 10$  (c)  $36 - 15 \times 2 = 6$  (d)  $21 \div 3 + 11 = 18$  (e)  $63 - 63 \times 21 = 0$  (f)  $27 \div 3 - 8 = 1$

### Practice Exercise 5.2

$$(a) 17 + [8 - \{5 + (10 \div 5)\}]$$

$$= 17 + [8 - \{5 + 2\}]$$

(Solving round brackets)

$$= 17 + [8 - 7]$$

(Solving curly brackets)

$$= 17 + 1$$

(Solving square brackets)

$$= 18$$

(Addition)

$$(b) \{5 + (48 \div 12)\} - 2 \times 3$$

$$= \{5 + 4\} - 2 \times 3$$

(Solving round brackets)

$$= 9 - 2 \times 3$$

(Solving curly brackets)

$$= 9 - 6$$

(Multiplication)

$$= 3$$

(Subtraction)

$$(c) 23 - [6 + \{8 - (9 - 6)\}]$$

$$= 23 - [6 + \{8 - 3\}]$$

(Solving round brackets)

$$= 23 - [6 + 5]$$

(Solving curly brackets)

$$= 23 - 11$$

(Solving square brackets)

$$= 12$$

(Subtraction)

$$(d) 20 - \{18 \div (7 - 2 + 1)\}$$

$$= 20 - \{18 \div 6\}$$

(Solving round brackets)

$$= 20 - 3$$

(Solving curly brackets)

$$= 17$$

(Subtraction)

$$(e) 40 - \{12 + 16 - (12 \div 3)\}$$

$$= 40 - \{12 + 16 - 4\}$$

(Solving round brackets)

$$= 40 - (28 - 4)$$

(Solving curly brackets)

$$= 40 - 24$$

(Subtraction)

$$= 16$$

$$(f) 2 [19 - \{7 + (12 \div 4)\}]$$

$$= 2 [19 - \{7 + 3\}]$$

(Solving round brackets)

$$= 2 [19 - 10]$$

(Solving curly brackets)

$$= 2 \times 9$$

(Solving square brackets)

$$= 18$$

(Multiplication)

$$(g) [(66 - (13 + 14) \div 3)] + 9$$

$$= [(66 - 27 \div 3)] + 9$$

$$= [66 - 9] + 9$$

$$= 57 + 9$$

$$= 66$$

(Solving round brackets)

(Solving curly brackets)

(Solving square brackets)

(Add)

$$(h) 20 - [5 \times \{7 + 2\} \div 3]$$

$$= 20 - [5 \times \{9 \div 3\}]$$

$$= 20 - [5 \times 3]$$

$$= 20 - 15$$

$$= 5$$

(solving round brackets)

(solving curly brackets)

(solving square brackets)

(subtract)

$$(i) 40 \div (1 + \overline{6 - 2}) + 5$$

$$= 40 \div (1 + 4) + 5$$

$$= 40 \div 5 + 5$$

$$= 8 + 5$$

$$= 13$$

(Solving round brackets)

(Divide)

(Add)

$$(j) 28 + [6 + \{3 \times (27 \div \frac{9}{5})\}]$$

$$= 28 + [6 + \{3 \times 15\}]$$

$$= 28 + [6 + 45]$$

$$= 28 + 51$$

$$= 79$$

(Solving round brackets)

(Solving curly brackets)

(Solving square brackets)

(Add)

$$(k) 27 \div 3 \times (7 - 4) + 2 \times 9 \div (4 + 2)$$

$$= 27 \div 3 \times 3 + 2 \times 9 \div 6$$

$$= 9 \times 3 + \frac{2 \times 9}{6}$$

$$= 27 + 3$$

$$= 30$$

(Solving round brackets)

(Divide)

(Multiple)

(Add)

$$(l) 7\frac{1}{2} + \left\{3\frac{3}{7} - 2\frac{1}{2} - \frac{3}{4} - \frac{1}{2}\right\}$$

$$= \frac{15}{2} + \left\{\frac{24}{7} - \frac{5}{2} - \frac{1}{4}\right\}$$

$$= \frac{15}{2} + \left\{\frac{24 \times 4 - 14 \times 5 - 7}{28}\right\}$$

$$= \frac{15}{2} + \left\{\frac{96 - 70 - 7}{28}\right\}$$

$$= \frac{15}{2} + \frac{19}{28}$$

$$\frac{15 \times 14 + 19}{28} = \frac{210 + 19}{28}$$

$$= \frac{229}{28} = 8\frac{5}{28}$$

(Solving curly brackets)

(LCM of 7, 2 and 4 is 28)

(L.C.M of 28 and 2 is 28)

$$(m) 48 \div \{26 - (14 - \overline{16 - 12})\}$$

$$= 48 \div \{26 - (14 - 4)\}$$

(Solving round brackets)

$$\begin{aligned}
 &= 48 \div \{26 - 10\} && \text{(Solving curly brackets)} \\
 &= 48 \div 16 && \text{(Divide)} \\
 &= 3
 \end{aligned}$$

$$\begin{aligned}
 \text{(n)} \quad &17 + [11 - \{8 + 3 - (9 \text{ of } 6 + 7 - 13 \times 4)\}] \\
 &= 17 + [11 - \{8 + 3 - (9 \times 6 + 7 - 13 \times 4)\}] \\
 &= 17 + [11 - \{8 + 3 - (54 + 7 - 52)\}] \\
 &= 17 + [11 - \{8 + 3 - 9\}] \\
 &= 17 + [11 - 2] \\
 &= 17 + 9 \\
 &= 26
 \end{aligned}$$

$$\begin{aligned}
 \text{(o)} \quad &15 + 9 \div 3 - [5 \times 3 - \{5 - (8 - 5)\}] \\
 &= 15 + 9 \div 3 - [5 \times 3 - \{5 - 3\}] \\
 &= 15 + 9 \div 3 - [5 \times 3 - 2] \\
 &= 15 + 9 \div 3 - 13 \\
 &= 15 + 3 - 13 \\
 &= 18 - 13 \\
 &= 5
 \end{aligned}$$

$$\begin{aligned}
 \text{(p)} \quad &9 + \{20 - 3 \text{ of } 5 + (20 + 40 - 25 \div 5)\} \\
 &= 9 + \{20 - 3 \text{ of } 5 + (20 + 40 - 5)\} && \text{(Solving round bracket)} \\
 &= 9 + \{20 - 3 \text{ of } 5 + 55\} && \text{(Solving curly bracket)} \\
 &= 9 + \{20 - 3 \times 5 + 55\} \\
 &= 9 + \{20 - 15 + 55\} \\
 &= 9 + 60 \\
 &= 69
 \end{aligned}$$

### Mental math zone

1. (a) false (b) false (c) true (d) false (e) false

$$\begin{aligned}
 \text{2. (a)} \quad &90 \div 10 + 2 - 10 && \text{(b)} \quad 215 - 45 \div 3 + 15 \times 2 \\
 &= 9 + 2 - 10 && = 215 - 15 + 30 \\
 &= 11 - 10 = 1 && = 215 + 15 \\
 & && = 230
 \end{aligned}$$

$$\begin{aligned}
 \text{(c)} \quad &7 \div 7 \times 7 + 7 - 7 && \text{(d)} \quad 50 - 20 + 3 \times 10 \div 2 \\
 &= 1 \times 7 + 7 - 7 && = 50 - 20 + 3 \times 5 \\
 &= 7 + 0 && = 50 - 20 + 15 \\
 &= 7 && = 65 - 20 = 45
 \end{aligned}$$

$$\begin{aligned}
 \text{(e)} \quad &10 - (7 - 3) && \text{(f)} \quad 75 + (5 - 1) - 3 \\
 &= 10 - 4 && = 75 + 4 - 3 \\
 &= 6 && = 79 - 3 = 76
 \end{aligned}$$

$$\begin{aligned}
 \text{(g)} \quad &35 - [7 - \{3 + (5 - 6 + 7)\}] && \text{(h)} \quad 8 + [2 + \{3 - 2 + (8 - 2 + 1)\}] \\
 &= 35 - [7 - \{3 + 6\}] && = 8 + [2 + \{3 - 2 + 7\}]
 \end{aligned}$$

$$\begin{aligned}
 &= 35 - [7 - 9] & &= 8 + [2 + 8] \\
 &= 35 - 2 & &= 8 + 10 \\
 &= 33 & &= 18
 \end{aligned}$$

$$\begin{aligned}
 \text{(i)} \quad &28 - [8 - \{3 + 4 + (6 - 5 + 1) - 2\}] \\
 &= 28 - [8 - \{3 + 4 + 2 - 2\}] \\
 &= 28 - [8 - 7] \\
 &= 28 - 1 \\
 &= 27
 \end{aligned}$$

$$\begin{aligned}
 \text{(j)} \quad &\left(3\frac{1}{3} \div \frac{5}{6}\right) - \left(2\frac{2}{3} - 1\frac{3}{4}\right) \\
 &= \frac{10}{3} \div \frac{5}{6} - \left(\frac{8}{3} - \frac{7}{4}\right) \\
 &= \frac{10}{3} \times \frac{6}{5} - \left(\frac{32 - 21}{12}\right) \\
 &= \frac{4}{1} - \frac{11}{12} \\
 &\frac{48 - 11}{12} = \frac{37}{12} = 3\frac{1}{12}
 \end{aligned}$$

### Multiple Choice Questions (MCQs)

1.  $20 \times 8 \div 2 + 60 - 20$   
 $= 20 \times 4 + 60 - 20$   
 $= 80 + 60 - 20$   
 $= 120$
2.  $80 - 75 \div 3 + 60$   
 $= 80 - 25 + 60$   
 $= 140 - 25$   
 $= 115$
3.  $6 + 10 \div 5 \times 3 - 6$   
 $= 6 + 2 \times 3 - 6$   
 $= 6 + 6 - 6$   
 $= 6$
4.  $[5 \{(88 + 2) \div 9\}] - 25$   
 $= [5 \{ 90 \div 9\}] - 25$   
 $= [5 \times 10] - 25$   
 $= 50 - 25$   
 $= 25$
5.  $80 - [20 + \{40 - (30 - 20)\}]$   
 $= 80 - [20 + \{40 - 10\}]$   
 $= 80 - [20 + 30]$   
 $= 80 - 50$   
 $= 30$

### Practice Exercise 6.1

1. (a)  $15 = 1, 3, 5, 15$  (b)  $25 = 1, 5, 25$  (c)  $35 = 1, 5, 7, 35$  (d)  $45 = 1, 3, 5, 9, 15, 45$  2. (a)  $8 = 1, 2, 4, 8$ ;  $12 = 1, 2, 3, 4, 6, 12$ ; Common factors = 1, 2 and 4 (b)  $5 = 1, 5$ ;  $7 = 1, 7$ ; Common factor = 1 (c)  $12 = 1, 2, 3, 4, 6, 12$ ;  $18 = 1, 2, 3, 6, 9, 18$ ; Common factors = 1, 2, 3 and 6 (d)  $10 = 1, 2, 5, 10$ ;  $20 = 1, 2, 4, 5, 10, 20$ ; Common factors = 1, 2, 5 and 10 3. (a) 4, 8, 12, 16, 20

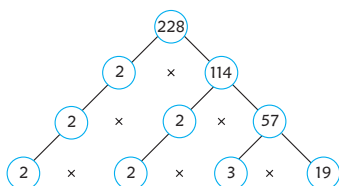


(b) 6, 12, 18, 24, 30 (c) 9, 18, 27, 36, 45 (d) 10, 20, 30, 40, 50  
**4.** (a)  $2 = 2, 4, 6, 8, 10, 12$ ;  $3 = 3, 6, 9, 12$ ; Common multiples = 6 and 12 (b)  $4 = 4, 8, 12, 16, 20, 24, 28, 32, 36, 40$ ;  $5 = 5, 10, 15, 20, 25, 30, 35, 40$ ; Common multiples = 20 and 40 (c)  $4 = 4, 8, 12, 16, 20, 24$ ;  $12 = 12, 24$ ; Common multiples = 12 and 24 (d)  $10 = 10, 20, 30, 40$ ;  $20 = 20, 40$ ; Common multiples = 20 and 40 **5.** (a) factors (b) multiple **6.** (a) 7, 14, 21, 28 (b) 12, 24, 36, 48, 60, 72, 84, 96 (c) 55, 60, 70 (d) Multiples of 3 = 3, 6, 9, 12, 15, 18, 21, 24, 27, 30 Multiples of 4 = 4, 8, 12, 16, 20, 24, 28, 32, 36, 40 **7.** (a)  $\because 13 \times 9 = 117$ ; So, yes 13 is a factor of 117. (b)  $\because 272 \div 16 = 17$ ; So, yes 272 is a multiple of 16. (c)  $\because 984 \div 8 = 123$ ; So, yes 984 is a multiple of 8. (d)  $\because 17 \times 24 = 408$ ; So, yes 17 is a factor of 408.

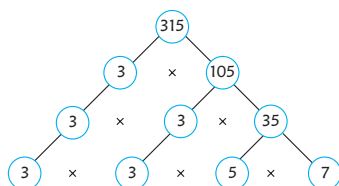
### Practice Exercise 6.2

**1.** Even numbers = 36, 38, 44, 48, 54, 68, 92 **2.** (a) 2, 3, 5, 7, 11, 13, 17, 19 (b) 41, 43, 47, 53, 59 (c) 61, 67, 71, 73, 79 **3.** Prime numbers = f, g; Composite numbers = a, b, c, d, e, h **4.** a, c, e, f, g **5.** a, d **6.** 90, 91, 92, 93, 94, 95

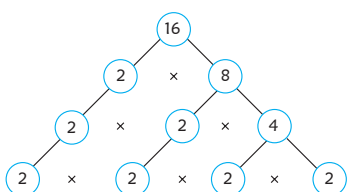
**7. (a)**



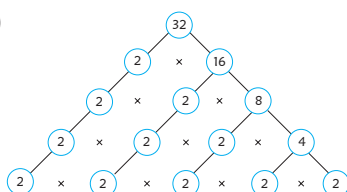
**(b)**



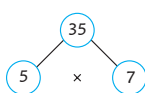
**8. (a)**



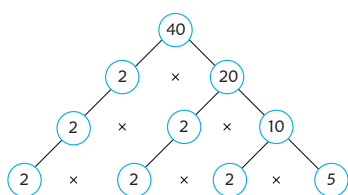
**(b)**



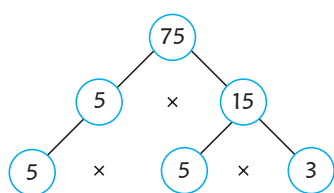
**(c)**



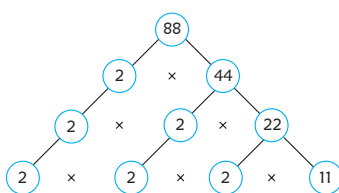
**(d)**

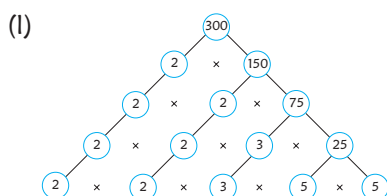
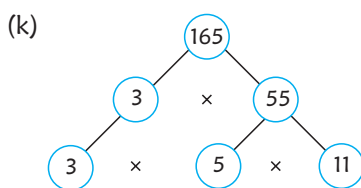
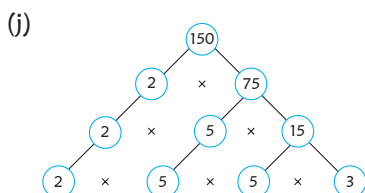
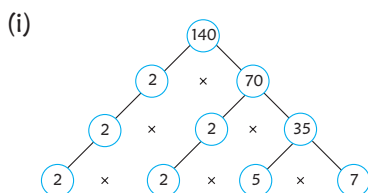
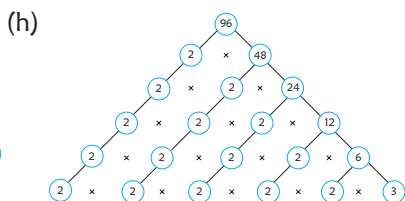
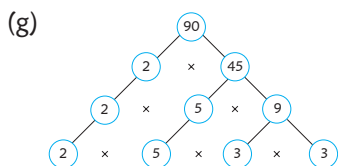


**(e)**



**(f)**





9. (a)

$$\begin{array}{r|l} 2 & 24 \\ \hline 2 & 12 \\ \hline 2 & 6 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

(b)

$$\begin{array}{r|l} 2 & 36 \\ \hline 2 & 18 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

(c)

$$\begin{array}{r|l} 2 & 90 \\ \hline 3 & 45 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

(d)

$$\begin{array}{r|l} 2 & 160 \\ \hline 2 & 80 \\ \hline 2 & 40 \\ \hline 2 & 20 \\ \hline 2 & 10 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

(e)

$$\begin{array}{r|l} 2 & 180 \\ \hline 2 & 90 \\ \hline 3 & 45 \\ \hline 3 & 15 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

(f)

$$\begin{array}{r|l} 2 & 200 \\ \hline 2 & 100 \\ \hline 2 & 50 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

(g)

$$\begin{array}{r|l} 2 & 220 \\ \hline 2 & 110 \\ \hline 11 & 55 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

(h)

$$\begin{array}{r|l} 2 & 224 \\ \hline 2 & 112 \\ \hline 61 & 61 \\ \hline & 1 \end{array}$$

(i)

$$\begin{array}{r|l} 2 & 250 \\ \hline 5 & 125 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$$

(j)

$$\begin{array}{r|l} 2 & 280 \\ \hline 2 & 140 \\ \hline 2 & 70 \\ \hline 5 & 35 \\ \hline 7 & 7 \\ \hline & 1 \end{array}$$

### Practice Exercise 6.3

1. (a) 81 and 108

$$\begin{array}{r|l} 3 & 81, 108 \\ \hline 3 & 27, 36 \\ \hline 3 & 9, 12 \\ \hline & 3, 4 \end{array}$$

H.C.F.  
 $= 3 \times 3 \times 3$   
 $= 27$

(b) 96 and 120

$$\begin{array}{r|l} 2 & 96, 120 \\ \hline 2 & 48, 60 \\ \hline 2 & 24, 30 \\ \hline 3 & 12, 15 \\ \hline & 4, 5 \end{array}$$

H.C.F.  
 $= 2 \times 2 \times 2 \times 3$   
 $= 24$

(c) 168 and 216

$$\begin{array}{r|l} 2 & 168, 216 \\ \hline 2 & 84, 108 \\ \hline 2 & 42, 54 \\ \hline 3 & 21, 27 \\ \hline & 7, 9 \end{array}$$

H.C.F.  
 $= 2 \times 2 \times 2 \times 3$   
 $= 24$

(d) 135 and 180

$$\begin{array}{r|l}
 3 & 135, 180 \\
 3 & 45, 60 \\
 5 & 15, 20 \\
 \hline
 & 3, 4
 \end{array}$$

H.C.F

$$\begin{aligned}
 &= 3 \times 3 \times 5 \\
 &= 45
 \end{aligned}$$

2. (a) 45 and 81

$$\begin{array}{r|l}
 3 & 45, 81 \\
 3 & 15, 27 \\
 \hline
 & 5, 9
 \end{array}$$

H.C.F

$$= 3 \times 3 = 9$$

(d) 12, 16 and 28  
80

$$\begin{array}{r|l}
 2 & 12, 16, 28 \\
 2 & 6, 8, 14 \\
 \hline
 & 3, 4, 7
 \end{array}$$

H.C.F

$$\begin{aligned}
 &= 2 \times 2 \\
 &= 4
 \end{aligned}$$

3. (a) 48 and 108

$$\begin{array}{r}
 48 \overline{) 108} \left( 2 \right. \\
 \underline{- 96} \phantom{0} \\
 12 \overline{) 42} \left( 4 \right. \\
 \underline{- 48} \phantom{0} \\
 \hline
 \times
 \end{array}$$

H.C.F = 12

(c) 72 and 192

$$\begin{array}{r}
 72 \overline{) 192} \left( 2 \right. \\
 \underline{- 144} \phantom{0} \\
 48 \overline{) 72} \left( 4 \right. \\
 \underline{- 48} \phantom{0} \\
 24 \overline{) 48} \left( 4 \right. \\
 \underline{- 48} \phantom{0} \\
 \hline
 \times
 \end{array}$$

(e) 240 and 336

$$\begin{array}{r|l}
 2 & 240, 336 \\
 2 & 120, 168 \\
 2 & 60, 84 \\
 2 & 30, 42 \\
 3 & 15, 21 \\
 \hline
 & 5, 7
 \end{array}$$

H.C.F

$$\begin{aligned}
 &= 2 \times 2 \times 2 \times 2 \times 3 \\
 &= 48
 \end{aligned}$$

(b) 513 and 783

$$\begin{array}{r|l}
 3 & 513, 783 \\
 3 & 171, 261 \\
 3 & 57, 87 \\
 \hline
 & 19, 29
 \end{array}$$

H.C.F

$$= 3 \times 3 \times 3 = 27$$

(e) 42, 36 and 21

$$\begin{array}{r|l}
 3 & 42, 36, 21 \\
 \hline
 & 14, 18, 7
 \end{array}$$

H.C.F

$$= 3$$

(f) 144 and 312

$$\begin{array}{r|l}
 2 & 144, 312 \\
 2 & 72, 156 \\
 2 & 36, 78 \\
 3 & 18, 39 \\
 \hline
 & 6, 13
 \end{array}$$

H.C.F

$$\begin{aligned}
 &= 2 \times 2 \times 2 \times 3 \\
 &= 24
 \end{aligned}$$

(c) 225 and 625

$$\begin{array}{r|l}
 5 & 225, 625 \\
 5 & 45, 125 \\
 \hline
 & 19, 29
 \end{array}$$

H.C.F

$$= 5 \times 5 = 25$$

(f) 40, and 64 and

$$\begin{array}{r|l}
 2 & 40, 64, 80 \\
 2 & 20, 32, 40 \\
 2 & 10, 16, 20 \\
 \hline
 & 5, 8, 10
 \end{array}$$

H.C.F

$$\begin{aligned}
 &= 2 \times 2 \times 2 \\
 &= 8
 \end{aligned}$$

(b) 85 and 125

$$\begin{array}{r}
 85 \overline{) 125} \left( 2 \right. \\
 \underline{- 85} \phantom{0} \\
 40 \overline{) 85} \left( 2 \right. \\
 \underline{- 80} \phantom{0} \\
 5 \overline{) 40} \left( 8 \right. \\
 \underline{- 40} \phantom{0} \\
 \hline
 \times
 \end{array}$$

H.C.F = 5

(d) 801 and 99

$$\begin{array}{r}
 99 \overline{) 801} \left( 8 \right. \\
 \underline{- 792} \phantom{0} \\
 9 \overline{) 99} \left( 2 \right. \\
 \underline{- 99} \phantom{0} \\
 \hline
 \times
 \end{array}$$

$$\text{H.C.F} = 24$$

$$\text{H.C.F} = 9$$

(e) 130, 442 and 520

First we find the HCF of any two numbers.

Let us take 130 and 520

$$\begin{array}{r} 130 \overline{) 520} \quad 4 \\ - 520 \\ \hline \times \end{array}$$

The HCF of 130 and 520 is 130.

Now, we find the HCF of 130 and 442.

$$\begin{array}{r} 130 \overline{) 442} \quad 3 \\ - 390 \\ \hline 52 \overline{) 130} \quad 2 \\ - 104 \\ \hline 20 \overline{) 52} \quad 3 \\ - 52 \\ \hline \times \end{array}$$

$\therefore$  H.C.F of 130 and 442 is 26.

(f) 144, 336 and 2016

First we find the HCF of any two numbers. Let us take 144 and 336.

$$\begin{array}{r} 144 \overline{) 336} \quad 2 \\ - 288 \\ \hline 48 \overline{) 144} \quad 3 \\ - 144 \\ \hline \times \end{array}$$

The H.C.F of 144 and 336 is 48. Now, we find the HCF of 48 and 2016

$$\begin{array}{r} 48 \overline{) 2016} \quad 42 \\ - 2016 \\ \hline \times \end{array}$$

$\therefore$  H.C.F of 48 and 36 is 48.

(g) 1640, 1312 and 164.

First we find the HCF of any two numbers.

Let us take 164 and 1312.

$$\begin{array}{r} 164 \overline{) 1312} \quad 8 \\ - 1312 \\ \hline \times \end{array}$$

The H.C.F of 164 and 1312 is 164.

Now, we find the HCF of 164 and 1640

$$\begin{array}{r} 164 \overline{) 1640} \quad 10 \\ - 1640 \\ \hline \times \end{array}$$

∴ H.C.F of 164 and 1640 is 164.

(h) 480, 648 and 720

First we find the HCF of any two numbers.

Let us take 480 and 720

$$\begin{array}{r}
 480 \overline{) 720} (1 \\
 \underline{- 480} \\
 240 \overline{) 480} (2 \\
 \underline{- 480} \\
 \hline
 \times
 \end{array}$$

The HCF of 480 and 720 is 240

Now, we find the HCF of 240 and 648.

$$\begin{array}{r}
 240 \overline{) 648} (2 \\
 \underline{- 480} \\
 168 \overline{) 240} (1 \\
 \underline{- 168} \\
 72 \overline{) 168} (2 \\
 \underline{- 144} \\
 24 \overline{) 72} (3 \\
 \underline{72} \\
 \hline
 \times
 \end{array}$$

∴ H.C.F of 240 and 648 is 24.

(i) 1092, 532 and 693

First we find the H.C.F of any two numbers.

Let us take 532 and 693.

$$\begin{array}{r}
 532 \overline{) 693} (1 \\
 \underline{- 532} \\
 161 \overline{) 532} (3 \\
 \underline{- 483} \\
 49 \overline{) 161} (4 \\
 \underline{- 147} \\
 14 \overline{) 49} (3 \\
 \underline{42} \\
 7 \overline{) 14} (2 \\
 \underline{14} \\
 \hline
 \times
 \end{array}$$

The HCF of 532 and 693 is 7.

Now, we find the HCF of 7 and 1092.

$$\begin{array}{r}
 7 \overline{) 1092} (156 \\
 \underline{- 1092} \\
 \hline
 \times
 \end{array}$$

HCF of 7 and 1092 is 7.

**4.** The HCF of 360 and 456

$$\begin{array}{r}
 360 \overline{) 456} \begin{array}{l} 1 \\ - 360 \\ \hline 96 \end{array} \overline{) 360} \begin{array}{l} 3 \\ - 288 \\ \hline 72 \end{array} \overline{) 96} \begin{array}{l} 2 \\ - 72 \\ \hline 24 \end{array} \overline{) 72} \begin{array}{l} 3 \\ - 72 \\ \hline 0 \end{array}
 \end{array}$$

So, the greatest number is 24.

**5.** The HCF of 1085 and 1435

$$\begin{array}{r}
 1085 \overline{) 1435} \begin{array}{l} 1 \\ - 1085 \\ \hline 350 \end{array} \overline{) 1085} \begin{array}{l} 3 \\ - 1050 \\ \hline 35 \end{array} \overline{) 350} \begin{array}{l} 10 \\ - 350 \\ \hline 0 \end{array}
 \end{array}$$

So, the greatest number is 35.

**6.** When we divide 710 by that number, the remainder is 8,

$\therefore$  That number divides  $(710 - 8)$ , i.e. 702 exactly.

When divides 980 by tha number, the remainder is 5.

$\therefore$  That number divides  $(980 - 5)$  i.e 975 exactly.

So, the required number divides 702 and 975. exactly

$\therefore$  Required number = HCF of 702 and 975.

$$\begin{array}{r}
 702 \overline{) 975} \begin{array}{l} 2 \\ - 702 \\ \hline 273 \end{array} \overline{) 702} \begin{array}{l} 2 \\ - 546 \\ \hline 156 \end{array} \overline{) 273} \begin{array}{l} 1 \\ - 156 \\ \hline 117 \end{array} \overline{) 156} \begin{array}{l} 1 \\ - 117 \\ \hline 39 \end{array} \overline{) 117} \begin{array}{l} 3 \\ - 117 \\ \hline 0 \end{array}
 \end{array}$$

Thus, the HCF of 702 and 975 is 39.

Hence, thr required number is 39.

**7.** When we divides 645 by that number the remainder is 7.

$\therefore$  That number divides  $(645 - 7)$  i.e. 638 exactly when we divide

790 by that number, the remainder is 7

∴ That number divides  $(790 - 7)$  i.e 783, exactly.

So, the required number divides 638 and 783 exactly.

∴ Required number = H.C.F of 638 and 783.

$$\begin{array}{r}
 638 \overline{) 783} (1 \\
 \underline{- 638} \\
 145 \overline{) 638} (4 \\
 \underline{- 580} \\
 58 \overline{) 145} (2 \\
 \underline{- 116} \\
 29 \overline{) 58} (3 \\
 \underline{- 57} \\
 \hline
 \text{X}
 \end{array}$$

Thus, the HCF of 638 and 783 is 29.

Hence, the required number is 29.

**8.** The HCF of 342, 450 and 540.

$$\begin{array}{r}
 342 \overline{) 450} (1 \\
 \underline{- 342} \\
 108 \overline{) 342} (3 \\
 \underline{- 324} \\
 18 \overline{) 108} (2 \\
 \underline{- 108} \\
 \hline
 \text{X}
 \end{array}$$

The HCF of 18 and 540

$$\begin{array}{r}
 18 \overline{) 540} (30 \\
 \underline{- 540} \\
 \hline
 \text{X}
 \end{array}$$

So, the greatest number is 18.

### Practice Exercise 6.4

**1.** (a) 24 and 30

$$\begin{array}{r|l}
 2 & 24 \\
 \hline
 2 & 12 \\
 \hline
 2 & 6 \\
 \hline
 3 & 3 \\
 \hline
 & 1
 \end{array}
 \qquad
 \begin{array}{r|l}
 2 & 30 \\
 \hline
 3 & 15 \\
 \hline
 5 & 5 \\
 \hline
 & 1
 \end{array}$$

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

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

Hence the L.C.M of 24, and 30

(b) 36 and 60

$$\begin{array}{r|l}
 2 & 36 \\
 \hline
 2 & 18 \\
 \hline
 3 & 9 \\
 \hline
 3 & 3 \\
 \hline
 & 1
 \end{array}
 \qquad
 \begin{array}{r|l}
 2 & 60 \\
 \hline
 2 & 30 \\
 \hline
 3 & 15 \\
 \hline
 5 & 5 \\
 \hline
 & 1
 \end{array}$$

$$36 = 2 \times 2 \times 3 \times 3$$

$$60 = 2 \times 2 \times 3 \times 5$$

$$\text{L.C.M} = 2 \times 2 \times 3 \times 3 \times 5$$

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

(c) 15 and 20

$$\begin{array}{r|l} 3 & 15 \\ 5 & 5 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 20 \\ 2 & 10 \\ 5 & 5 \\ \hline & 1 \end{array}$$

$$15 = 3 \times 5$$

$$20 = 2 \times 2 \times 5$$

$$\text{L.C.M} = 2 \times 2 \times 3 \times 5$$

$$= 60$$

(e) 42, 63 and 21

$$\begin{array}{r|l} 2 & 42 \\ 3 & 21 \\ 7 & 7 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 3 & 63 \\ 3 & 21 \\ 7 & 7 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 3 & 21 \\ 7 & 7 \\ \hline & 1 \end{array}$$

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

$$63 = 3 \times 3 \times 7$$

$$21 = 3 \times 7$$

$$\text{L.C.M} = 2 \times 3 \times 3 \times 7$$

$$= 126$$

2. (a) 20 and 56

$$\begin{array}{r|l} 2 & 20, 56 \\ 2 & 10, 28 \\ 2 & 5, 14 \\ \hline & 5, 7 \end{array}$$

$$\text{L.C.M} = 2 \times 2 \times 2 \times 5 \times 7$$

$$= 280$$

(c) 90 and 100

$$\begin{array}{r|l} 2 & 90, 100 \\ 5 & 45, 50 \\ \hline & 9, 10 \end{array}$$

$$\text{L.C.M} = 2 \times 5 \times 9 \times 10$$

$$= 900$$

(e) 27, 9 and 36

$$\begin{array}{r|l} 3 & 27, 9, 36 \\ 3 & 9, 3, 12 \\ \hline & 3, 1, 4 \end{array}$$

$$= 180$$

(d) 24, 28 and 30

$$\begin{array}{r|l} 2 & 24 \\ 2 & 12 \\ 2 & 6 \\ 3 & 3 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 28 \\ 2 & 14 \\ 7 & 7 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 2 & 30 \\ 3 & 15 \\ 5 & 5 \\ \hline & 1 \end{array}$$

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

$$28 = 2 \times 2 \times 7$$

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

$$\text{L.C.M} = 2 \times 2 \times 2 \times 2 \times 3 \times 3$$

$$\times 5 \times 7 = 5040$$

(f) 60, 9 and 75

$$\begin{array}{r|l} 2 & 60 \\ 2 & 30 \\ 3 & 15 \\ 5 & 5 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 3 & 9 \\ 3 & 3 \\ \hline & 1 \end{array} \quad \begin{array}{r|l} 3 & 75 \\ 5 & 25 \\ 5 & 5 \\ \hline & 1 \end{array}$$

$$60 = 2 \times 2 \times 3 \times 5$$

$$9 = 3 \times 3$$

$$75 = 3 \times 5 \times 5$$

$$\text{L.C.M} = 2 \times 2 \times 3 \times 3 \times 5 \times 5$$

$$= 900$$

(b) 51 and 85

$$\begin{array}{r|l} 3 & 51, 85 \\ 17 & 17, 85 \\ 5 & 1, 5 \\ \hline & 1, 1 \end{array}$$

$$\text{L.C.M} = 3 \times 5 \times 17$$

$$= 255$$

(d) 60, 75 and 135

$$\begin{array}{r|l} 3 & 60, 75, 135 \\ 5 & 20, 25, 45 \\ \hline & 4, 5, 9 \end{array}$$

$$\text{L.C.M} = 3 \times 4 \times 5 \times 5 \times 9$$

$$= 2700$$

(f) 36, 48, and 60

$$\begin{array}{r|l} 2 & 36, 48, 60 \\ 2 & 18, 24, 30 \\ 3 & 6, 12, 15 \\ \hline & 3, 4, 5 \end{array}$$



$$\begin{aligned} \text{L.C.M} &= 3 \times 3 \times 3 \times 4 \\ &= 108 \end{aligned}$$

$$\begin{aligned} \text{L.C.M} &= 2 \times 2 \times 3 \times 3 \times 4 \times 5 \\ &= 720 \end{aligned}$$

$$\begin{array}{l|l} 3. & 2 \mid 12, 15, 18, 21 \\ & 3 \mid 6, 15, 9, 21 \\ & \mid 2, 5, 3, 7 \end{array} \begin{aligned} &= \text{L.C.M} - 7 \\ &= 1260 - 7 \\ &= 1253 \end{aligned}$$

$$\begin{aligned} \text{L.C.M} &= 2 \times 3 \times 2 \times 3 \times 5 \times 7 \\ &= 1260 \end{aligned}$$

$$\begin{array}{l|l} 4. & 2 \mid 18, 24, 30, 36 \\ & 2 \mid 9, 12, 15, 18 \\ & 3 \mid 9, 6, 15, 9 \\ & 3 \mid 3, 2, 5, 3 \\ & \mid 1, 2, 5, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M} &= 2 \times 2 \times 3 \times 3 \times 2 \times 5 \\ &= 360 \end{aligned}$$

$$\text{L.C.M} + 9 = 360 + 9 = 369$$

$$\begin{array}{l|l} 5. & 2 \mid 30, 36, 54, 63 \\ & 3 \mid 15, 18, 27, 63 \\ & 3 \mid 5, 6, 9, 21 \\ & \mid 5, 2, 3, 7 \end{array}$$

$$\begin{aligned} \text{L.C.M} &= 2 \times 3 \times 3 \times 5 \times 2 \times 3 \times 7 \\ &= 3780 \end{aligned}$$

$$= \text{L.C.M} + (\text{Remainder})$$

$$= 3780 + 8 = 3780$$

$$\begin{array}{l|l} 6. & 3 \mid 15, 18, 45 \\ & 3 \mid 5, 6, 15 \\ & 5 \mid 5, 2, 5 \\ & \mid 1, 2, 1 \end{array}$$

$$\begin{aligned} \text{L.C.M} &= 3 \times 3 \times 5 \times 2 \\ &= 90 \end{aligned}$$

After 90 seconds will the three bells toll together.

$$\begin{array}{l|l} 7. & 2 \mid 72, 96, 120 \\ & 2 \mid 36, 48, 60 \\ & 2 \mid 18, 24, 30 \\ & 3 \mid 9, 12, 15 \\ & \mid 3, 4, 5 \end{array}$$

$$\begin{aligned} \text{L.C.M} &= 2 \times 2 \times 2 \times 3 \times 3 \times 4 \times 5 \\ &= 1440 \end{aligned}$$

$$\text{L.C.M} + \text{Remainder}$$

$$= 1440 + 7 = 1447$$

### Practice Exercise 6.5

$$1. \text{ Ist number} \times \text{IInd number} = \text{H.C.F} \times \text{L.C.M}$$

$$896 \times 1024 = \text{H.C.F} \times 7168$$

$$\frac{896 \times 1024}{7168} = \text{HCF}$$

$$\text{HCF} = 128$$

$$2. \text{ Ist number} \times \text{IInd number} = \text{H.C.F} \times \text{L.C.M}$$

$$1566 \times \text{IInd number} = 58 \times 54810$$

$$\text{IInd number} = \frac{58 \times 54810}{1566}$$

$$\text{IInd number} = 2030$$

$$3. \text{ Ist number} \times \text{IInd number} = \text{H.C.F} \times \text{L.C.M}$$

$$650 \times \text{IInd number} = 26 \times 16900$$

$$\text{IInd number} = \frac{26 \times 16900}{650}$$

$$\text{other number} = 676$$

$$4. \text{ Product of two numbers} = \text{H.C.F} \times \text{L.C.M}$$

$$15870 = 23 \times \text{L.C.M}$$

$$\text{L.C.M} = \frac{15870}{23} \\ = 690$$

$$5. \text{ Ist number} \times \text{IInd number} = \text{H.C.F} \times \text{L.C.M}$$

$$\text{Ist number} \times 70 = 14 \times 210$$

$$\text{Ist number} = \frac{14 \times 210}{70}$$

$$\text{Ist number} = 42$$

### Practice Exercise 6.6

1. (a) 468 and (d) 4572 are divisible by 2 because ones digits of the number is any one from 0, 2, 4, 6 and 8. 2. (d) 7254162 because the sum of the digits of the number is divisible by 3. 3. (a) 4243136, (b) 4682304 and (d) 6327340 because the number formed by the last two digits is divisible by 4. 4. (c) 2300 divisible by 5 and 10 because its unit digit is 0. 5. (b) 8453496 and (d) 3214620 because these are divisible by 2 and 3 both. 6. (a) 70 and (b) 147. 7. (a) 6436448 because the last three digits is divisible by 8. 8. (a) 1721421 (c) 3687201 because the sum of its digits is divisible by 9. 9. (c) 2090 and (d) 6079513. 10. (c) 9214356. 11. (a) 9214320 (c) 7162035 (d) 932415. 12. 43563 and 587634

### Mental math zone

1. (a) 18, 36 and 54 (b) 41, 43, 47, 53 and 59 (c) 3 (d) 2 (e) 1  
2. (a) True (b) True (c) True (d) False (e) False (f) True (g) True

### Multiple Choice Questions (MCQs)

1. Product 2. 1 3. 1 4. Product of numbers  $\div$  LCM

### Practice Exercise 7.1

1. (a) like (b) proper (c) improper (d) numerator, denominator  
2. (a)  $\frac{2}{5} = \frac{4}{10}, \frac{6}{15}, \frac{8}{20}, \frac{10}{25}$  (b)  $\frac{4}{7} = \frac{8}{14}, \frac{12}{21}, \frac{16}{28}, \frac{20}{35}$  (c)  $\frac{15}{19} = \frac{30}{38}, \frac{45}{57}, \frac{60}{76}, \frac{75}{95}$  3. (a)  $\frac{8}{56} = \frac{8 \div 8}{56 \div 8} = \frac{1}{7}$  (b)  $\frac{65}{75} = \frac{65 \div 5}{75 \div 5} = \frac{13}{15}$  (c)  $\frac{51}{119} = \frac{51 \div 17}{119 \div 17} = \frac{3}{7}$  4. (a) p (b) m (c) i (d) m (e) i (f) P  
5. (a)  $\frac{25}{8} = 3\frac{1}{8}$  (b)  $\frac{31}{3} = 10\frac{1}{3}$  (c)  $\frac{73}{8} = 9\frac{1}{8}$  6. (a)  $\frac{8}{17} + \frac{3}{17} = \frac{11}{17}$

- (b)  $\frac{1}{21} + \frac{5}{21} + \frac{7}{21} + \frac{13}{21}$  (c)  $2\frac{3}{5} + 3\frac{3}{5} = \frac{13}{5} + \frac{18}{5} = \frac{31}{5}$   
 7. (a)  $\frac{4}{5} - \frac{1}{5} = \frac{3}{5}$  (b)  $\frac{11}{23} - \frac{6}{23} = \frac{5}{23}$  (c)  $7\frac{7}{9} - 1\frac{5}{9} = \frac{70}{9} - \frac{14}{9} = \frac{56}{9} = 6\frac{2}{9}$   
 8. (a)  $\frac{1}{4}$  (b)  $\frac{3}{8}$  (c)  $\frac{2}{15}$

### Practice Exercise 7.2

1. (a)  $\frac{15}{20} = \frac{15 \div 5}{20 \div 5} = \frac{3}{4}$  (b)  $\frac{36}{48} = \frac{36 \div 12}{48 \div 12} = \frac{3}{4}$   
 (c)  $\frac{63}{72} = \frac{63 \div 9}{72 \div 9} = \frac{7}{8}$  (d)  $\frac{40}{50} = \frac{40 \div 5}{50 \div 5} = \frac{8}{10}$   
 (e)  $\frac{48}{64} = \frac{48 \div 8}{64 \div 8} = \frac{6}{8}$  (f)  $\frac{108}{120} = \frac{108 \div 12}{120 \div 12} = \frac{9}{10}$   
 2. (a)  $\frac{3}{4}$  (b)  $\frac{5}{6}$  (c)  $\frac{9}{13}$  (d)  $\frac{4}{9}$  (e)  $\frac{9}{10}$  (f)  $\frac{21}{26}$   
 3. (a) equivalent (b) equivalent (c) not equivalent (d) equivalent

### Practice Exercise 7.3

1. (a)  $\frac{24}{36} = \frac{24 \div 12}{36 \div 12} = \frac{2}{3}$  (b)  $\frac{45}{25} = \frac{45 \div 5}{25 \div 5} = \frac{9}{5}$   
 (c)  $\frac{75}{35} = \frac{75 \div 5}{35 \div 5} = \frac{15}{7}$  (d)  $\frac{32}{50} = \frac{32 \div 2}{50 \div 2} = \frac{16}{25}$   
 (e)  $\frac{54}{72} = \frac{54 \div 18}{72 \div 18} = \frac{3}{4}$  (f)  $\frac{18}{15} = \frac{18 \div 3}{15 \div 3} = \frac{6}{5}$   
 (g)  $\frac{120}{150} = \frac{120 \div 30}{150 \div 30} = \frac{4}{5}$  (h)  $\frac{75}{80} = \frac{75 \div 5}{80 \div 5} = \frac{15}{16}$   
 2. (a)  $\frac{17}{119} = \frac{17 \times 1}{17 \times 7} = \frac{1}{7}$  (b)  $\frac{105}{75} = \frac{5 \times 21}{5 \times 15} = \frac{21}{15} = \frac{3 \times 7}{3 \times 5} = \frac{7}{5}$   
 (c)  $\frac{28}{64} = \frac{4 \times 7}{4 \times 16} = \frac{7}{16}$  (d)  $\frac{12}{38} = \frac{2 \times 2 \times 3}{2 \times 19} = \frac{6}{19}$   
 (e)  $\frac{38}{54} = \frac{19 \times 2}{27 \times 2} = \frac{19}{27}$  (f)  $\frac{16}{24} = \frac{4 \times 4}{4 \times 6} = \frac{4}{6} = \frac{2 \times 2}{2 \times 3} = \frac{2}{3}$   
 (g)  $\frac{128}{256} = \frac{128 \times 1}{128 \times 2} = \frac{1}{2}$  (h)  $\frac{175}{200} = \frac{25 \times 7}{25 \times 8} = \frac{7}{8}$

### Practice Exercise 7.4

1. (a)  $>$  (b)  $>$  (c)  $>$  (d)  $>$  (e)  $<$  (f)  $>$   
 2. (a)  $\frac{4}{15}, \frac{4}{13}, \frac{4}{11}, \frac{4}{6}$  (b)  $\frac{11}{21}, \frac{11}{17}, \frac{11}{15}, \frac{11}{13}$  (c)  $\frac{4}{23}, \frac{7}{23}, \frac{10}{23}, \frac{13}{23}, \frac{18}{23}$   
 3. (a)  $\frac{3}{8}, \frac{3}{9}, \frac{3}{11}, \frac{3}{13}$  (b)  $\frac{5}{8}, \frac{5}{11}, \frac{5}{13}, \frac{5}{19}$  (c)  $\frac{9}{17}, \frac{6}{17}, \frac{5}{17}, \frac{4}{17}, \frac{1}{17}$

### Practice Exercise 7.5

1. (a)  $\frac{3}{23} + \frac{5}{23} + \frac{7}{23} = \frac{3+5+7}{23} = \frac{15}{23}$   
 (b)  $\frac{10}{23} + \frac{14}{23} + \frac{7}{23} = \frac{10+14+7}{23} = \frac{31}{23} = 1\frac{8}{23}$   
 (c)  $\frac{19}{29} + \frac{9}{29} + \frac{1}{29} = \frac{19+9+1}{29} = \frac{29}{29} = 1$

$$(d) \frac{3}{13} + \frac{4}{13} + \frac{8}{13} = \frac{3+4+8}{13} = \frac{15}{13} = 1\frac{2}{13}$$

$$(e) \frac{1}{5} + \frac{3}{5} + \frac{4}{5} + \frac{2}{5} = \frac{1+3+4+2}{5} = \frac{10}{5} = 2$$

$$(f) \frac{3}{34} + \frac{5}{34} + \frac{7}{34} + \frac{11}{34} = \frac{3+5+7+11}{34} = \frac{26}{34} = \frac{13}{17}$$

$$2. (a) \frac{4}{3} + \frac{2}{9} + \frac{1}{6} \text{ L.C.M. of 3, 9 and 6.}$$

$$= 3 \times 3 \times 2 = 18$$

$$\begin{array}{r|l} 3 & 3, 9, 6 \\ & 1, 3, 2 \end{array}$$

$$\frac{4}{3} = \frac{4 \times 6}{3 \times 6} = \frac{24}{18}, \frac{2}{9} = \frac{2 \times 2}{9 \times 2} = \frac{4}{18}, \frac{1}{6} = \frac{1 \times 3}{6 \times 3} = \frac{3}{18}$$

$$\text{So, } \frac{24}{18} + \frac{4}{18} + \frac{3}{18} = \frac{24+4+3}{18} = \frac{31}{18} = 1\frac{13}{18}$$

$$(b) \frac{3}{8} + \frac{5}{24} + \frac{9}{16} \text{ L.C.M. of 8, 24 and 16.}$$

$$= 2 \times 2 \times 2 \times 2 \times 3 = 48$$

$$\begin{array}{r|l} 2 & 8, 24, 16 \\ 2 & 4, 12, 8 \\ 2 & 2, 6, 4 \\ 2 & 1, 3, 2 \\ 3 & 1, 3, 1 \\ & 1, 1, 1 \end{array}$$

$$\frac{3}{8} = \frac{3 \times 6}{8 \times 6} = \frac{18}{48}, \frac{5}{24} = \frac{5 \times 2}{24 \times 2} = \frac{10}{48},$$

$$\frac{9}{16} = \frac{9 \times 3}{16 \times 3} = \frac{27}{48}$$

$$\text{So, } \frac{18}{48} + \frac{10}{48} + \frac{27}{48} = \frac{18+10+27}{48} = \frac{55}{48} = 1\frac{7}{48}$$

$$(c) \frac{3}{10} + \frac{11}{15} + \frac{8}{50} \text{ L.C.M. of 10, 15 and 50.}$$

$$= 2 \times 5 \times 3 \times 5 = 150$$

$$\begin{array}{r|l} 2 & 10, 15, 50 \\ 5 & 5, 15, 25 \\ & 1, 3, 5 \end{array}$$

$$\frac{3}{10} = \frac{3 \times 15}{10 \times 15} = \frac{45}{150}, \frac{11}{15} = \frac{11 \times 10}{15 \times 10} = \frac{110}{150}, \frac{8}{50} = \frac{8 \times 3}{50 \times 3} = \frac{24}{150}$$

$$\text{So, } \frac{45}{150} + \frac{110}{150} + \frac{24}{150} = \frac{45+110+24}{150} = \frac{179}{150} = 1\frac{29}{150}$$

$$(d) \frac{1}{20} + \frac{3}{10} + \frac{2}{15} \text{ L.C.M. of 20, 10 and 15.}$$

$$= 2 \times 2 \times 3 \times 5 = 60$$

$$\begin{array}{r|l} 2 & 20, 10, 15 \\ 2 & 10, 5, 15 \\ 5 & 5, 5, 15 \\ & 1, 1, 3 \end{array}$$

$$\frac{1}{20} = \frac{1 \times 3}{20 \times 3} = \frac{3}{60}, \frac{3}{10} = \frac{3 \times 6}{10 \times 6} = \frac{18}{60},$$

$$\frac{2}{15} = \frac{2 \times 4}{15 \times 4} = \frac{8}{60}$$

$$\text{So, } \frac{3}{60} + \frac{18}{60} + \frac{8}{60} = \frac{3+18+8}{60} = \frac{29}{60}$$

$$(e) \frac{10}{13} + \frac{11}{26} + \frac{8}{39} + \frac{1}{78} \text{ L.C.M. of 13, 26, 39 and 78.}$$

$$= 2 \times 3 \times 13 = 78$$

$$\begin{array}{r|l} 13 & 13, 26, 39, 78 \\ 2 & 1, 2, 3, 6 \\ 3 & 1, 1, 3, 3 \\ & 1, 1, 1, 1 \end{array}$$

$$\frac{10}{13} = \frac{10 \times 6}{13 \times 6} = \frac{60}{78}, \frac{11}{26} = \frac{11 \times 3}{26 \times 3} = \frac{33}{78},$$

$$\frac{8}{39} = \frac{8 \times 2}{39 \times 2} = \frac{16}{78}, \frac{1}{78} = \frac{1}{78} = \frac{1}{78}$$

$$\text{So, } \frac{60}{78} + \frac{33}{78} + \frac{16}{78} + \frac{1}{78} = \frac{60 + 33 + 16 + 1}{78} = \frac{110}{78} = 1\frac{32}{78}$$

$$(f) \frac{1}{6} + \frac{7}{24} + \frac{5}{8} + \frac{9}{16} \text{ L.C.M. of 6, 24, 8 and 16.}$$

$$= 2 \times 2 \times 2 \times 2 \times 3 = 48$$

$$\frac{1}{6} = \frac{1 \times 8}{6 \times 8} = \frac{8}{48}, \frac{1}{24} = \frac{2}{24 \times 2} = \frac{2}{48},$$

$$\frac{5}{8} = \frac{5 \times 6}{8 \times 6} = \frac{30}{48}, \frac{9}{16} = \frac{9 \times 3}{16 \times 3} = \frac{27}{48}$$

$$\text{So, } \frac{8}{48} + \frac{2}{48} + \frac{30}{48} + \frac{27}{48} = \frac{8 + 2 + 30 + 27}{48} = \frac{67}{48} = 1\frac{19}{48}$$

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

$$3. (a) 2\frac{1}{3} + 3\frac{1}{3} + 5\frac{1}{3}$$

Change to improper fraction i.e.

$$2\frac{1}{3} = \frac{7}{3}, 3\frac{1}{3} = \frac{10}{3}, 5\frac{1}{3} = \frac{16}{3}$$

Add the new fraction

$$\frac{7}{3} + \frac{10}{3} + \frac{16}{3} = \frac{7 + 10 + 16}{3} = \frac{33}{3} = 11$$

$$(b) 2\frac{1}{3} + 3\frac{1}{3} + 5\frac{1}{3}$$

Change to improper fraction i.e.

$$2\frac{1}{3} = \frac{7}{3}, 3\frac{1}{3} = \frac{10}{3}, 5\frac{1}{3} = \frac{16}{3}$$

Add the new fraction

$$\frac{7}{3} + \frac{10}{3} + \frac{16}{3} = \frac{7 + 10 + 16}{3} = \frac{33}{3} = 11$$

$$(c) 4\frac{3}{4} + 1\frac{1}{18} + 3\frac{1}{12}$$

Change to improper fraction i.e.

$$4\frac{3}{4} = \frac{19}{4}, 1\frac{1}{18} = \frac{19}{18}, 3\frac{1}{12} = \frac{37}{12}$$

Add the new fraction

$$\frac{19}{4} + \frac{19}{18} + \frac{37}{12} \quad \text{L.C.M. of 4, 18 and 12}$$

$$2 \times 2 \times 3 \times 3 = 36$$

$$\frac{19}{4} = \frac{19 \times 9}{4 \times 9} = \frac{171}{36}, \frac{19}{18} = \frac{19 \times 2}{18 \times 2} = \frac{38}{36}, \frac{37}{12} = \frac{37 \times 3}{12 \times 3} = \frac{111}{36}$$

$$\text{Add new numbers} = \frac{171}{36} + \frac{38}{36} + \frac{111}{36} = \frac{171 + 38 + 111}{36} = \frac{320}{36} = 8\frac{32}{36}$$

$$(d) 3\frac{1}{7} + 4\frac{5}{7} + 6\frac{1}{7}$$

2	4, 18, 12
2	2, 9, 6
3	1, 9, 3
3	1, 3, 1
	1, 1, 1

Change to improper fraction i.e.

$$3\frac{1}{7} = \frac{22}{7}, 4\frac{5}{7} = \frac{33}{7}, 6\frac{1}{7} = \frac{43}{7}$$

Add the new fraction

$$\frac{22}{7} + \frac{33}{7} + \frac{43}{7} = \frac{22 + 33 + 43}{7} = \frac{98}{7} = 14$$

$$(e) 1\frac{1}{13} + 2\frac{2}{13} + 3\frac{3}{13}$$

Change to improper fraction i.e.

$$1\frac{1}{13} = \frac{14}{13}, 2\frac{2}{13} = \frac{28}{13}, 3\frac{1}{13} = \frac{42}{13}$$

Add the new fraction

$$\frac{14}{13} + \frac{28}{13} + \frac{42}{13} = \frac{14 + 28 + 42}{13} = \frac{84}{13} = 6\frac{6}{13}$$

$$(f) 5\frac{11}{24} + 6\frac{5}{24} + \frac{1}{24}$$

Change to improper fraction i.e.

$$5\frac{11}{24} = \frac{131}{24}, 6\frac{5}{24} = \frac{149}{24} = \frac{1}{24}$$

Add the new fraction

$$\frac{131}{24} + \frac{149}{24} + \frac{1}{24} = \frac{131 + 149 + 1}{24} = \frac{281}{24} = 11\frac{17}{24}$$

### Practice Exercise 7.6

$$1. (a) \frac{11}{15} - \frac{2}{5} \text{ L.C.M of 15 and 5 is 15. } (b) \frac{9}{11} - \frac{4}{5} \text{ L.C.M of 11 and 5 is 55.}$$

$$\frac{11}{15} = \frac{11 \times 1}{15 \times 1} = \frac{11}{15}$$

$$\frac{2}{5} = \frac{2 \times 3}{5 \times 3} = \frac{6}{15}$$

Subtract new numbers

$$\frac{11}{15} - \frac{2}{5} = \frac{11}{15} - \frac{6}{15} = \frac{5}{15} = \frac{1}{3}$$

$$(c) \frac{3}{7} - \frac{8}{28} \text{ L.C.M of 7 and 28 is 28. } (d) \frac{3}{4} - \frac{7}{16} \text{ L.C.M of 4 and 16 is 16.}$$

$$\frac{3}{7} = \frac{3 \times 4}{7 \times 4} = \frac{12}{28},$$

$$\frac{8}{28} = \frac{8 \times 1}{28 \times 1} = \frac{8}{28}$$

Subtract new numbers

$$\frac{12}{28} - \frac{8}{28} = \frac{12 - 8}{28} = \frac{4}{28} = \frac{1}{7}$$

$$(e) \frac{18}{20} - \frac{4}{15} \text{ L.C.M of 20 and 15 is 60. } (f) \frac{19}{24} - \frac{3}{8} \text{ L.C.M of 24 and 8 is 24.}$$

$$\frac{18}{20} = \frac{18 \times 3}{20 \times 3} = \frac{54}{60},$$

$$\frac{9}{11} = \frac{9 \times 5}{11 \times 5} = \frac{45}{55}$$

$$\frac{4}{5} = \frac{4 \times 11}{5 \times 11} = \frac{44}{55}$$

Subtract new numbers

$$\frac{45}{55} - \frac{44}{55} = \frac{45 - 44}{55} = \frac{1}{55}$$

$$\frac{3}{4} = \frac{3 \times 4}{4 \times 4} = \frac{12}{16},$$

$$\frac{7}{16} = \frac{7 \times 1}{16 \times 1} = \frac{7}{16}$$

Subtract new numbers

$$\frac{12}{16} - \frac{7}{16} = \frac{12 - 7}{16} = \frac{5}{16}$$

$$\frac{19}{24} = \frac{19}{24}, \frac{3}{8} = \frac{3 \times 3}{8 \times 3} = \frac{9}{24}$$

$$\frac{4}{15} = \frac{4 \times 4}{15 \times 4} = \frac{16}{60}$$

Subtract new numbers

$$\frac{54}{60} - \frac{16}{60} = \frac{54-16}{60} = \frac{38}{60} = \frac{19}{30}$$

$$(h) \frac{7}{15} - \frac{4}{15} = \frac{7-4}{15} = \frac{3}{15} = \frac{1}{5}$$

$$(j) 2\frac{4}{8} - 1\frac{3}{4} \text{ Change into improper}$$

$$\text{fractions } 2\frac{4}{8} = \frac{20}{8}; 1\frac{3}{4} = \frac{7}{4}$$

L.C.M of 8 and 4 is 8.

$$\text{So, } \frac{20}{8} = \frac{20 \times 1}{8 \times 1} = \frac{20}{8};$$

$$\frac{7}{4} = \frac{7 \times 2}{4 \times 2} = \frac{14}{8};$$

Subtract new numbers

$$\frac{20}{8} - \frac{14}{8} = \frac{20-14}{8} = \frac{6}{8} = \frac{3}{4}$$

$$(l) 3\frac{1}{4} - 1\frac{2}{3} \text{ Change into improper}$$

$$\text{fractions } 3\frac{1}{4} = \frac{13}{4}; 1\frac{2}{3} = \frac{5}{3}$$

L.C.M of 4 and 3 is 12.

$$\frac{13}{4} = \frac{13 \times 3}{4 \times 3} = \frac{39}{12}; \frac{5}{3} = \frac{5 \times 4}{3 \times 4} = \frac{20}{12}$$

Subtract new numbers

$$\frac{39}{12} - \frac{20}{12} = \frac{39-20}{12} = \frac{19}{12} = 1\frac{7}{12}$$

Subtract new numbers

$$\frac{19}{24} - \frac{9}{24} = \frac{19-9}{24} = \frac{10}{24} = \frac{5}{12}$$

$$(g) \frac{18}{23} - \frac{12}{23} = \frac{18-12}{23} = \frac{6}{23}$$

$$(i) \frac{15}{18} - \frac{4}{6} \text{ L.C.M of 18 and 6 is 18.}$$

$$\frac{15}{18} = \frac{15 \times 1}{18 \times 1} = \frac{15}{18};$$

$$\frac{4}{6} = \frac{4 \times 3}{6 \times 3} = \frac{12}{18}$$

Subtract new numbers

$$\frac{15}{18} - \frac{12}{18} = \frac{15-12}{18} = \frac{3}{18} = \frac{1}{6}$$

$$(k) 3\frac{1}{6} - 2\frac{1}{10} \text{ Change into improper}$$

$$\text{fractions } 3\frac{1}{6} = \frac{19}{6}; 2\frac{1}{10} = \frac{21}{10}$$

L.C.M of 6 and 10 is 30.

$$\text{So, } \frac{19}{6} = \frac{19 \times 5}{6 \times 5} = \frac{95}{30};$$

$$\frac{21}{10} = \frac{21 \times 3}{10 \times 3} = \frac{63}{30};$$

Subtract new numbers

$$\frac{95}{30} - \frac{63}{30}$$

$$= \frac{95-63}{30}$$

$$= \frac{32}{30} = \frac{2}{30}$$

### Practice Exercise 7.7

$$1. (a) \frac{4}{1} + \frac{5}{16} - \frac{3}{4} \text{ (L.C.M of 4 and 16 is 16)}$$

$$= \frac{4 \times 16 + 5 \times 1 - 3 \times 4}{16} = \frac{64 + 5 - 12}{16}$$

$$= \frac{69-12}{16} = \frac{57}{16} = 3\frac{9}{16}$$

$$(b) \frac{6}{7} + 4 - 2\frac{1}{14} \text{ Change to improper fraction}$$

$$= \frac{6}{7} + \frac{4}{1} - \frac{29}{14} \text{ (L.C.M of 7, and 14 is 14)}$$

$$= \frac{6 \times 2 + 4 \times 14 - 29 \times 1}{14} = \frac{12 + 56 - 29}{14}$$

$$= \frac{68-29}{14} = \frac{39}{14} = 2\frac{11}{14}$$

(c)  $7\frac{3}{4} - 2\frac{1}{3} - 1\frac{2}{5}$  Change to improper fraction

$$= \frac{31}{4} - \frac{7}{3} - \frac{7}{5} \text{ (L.C.M of 4, 3 and 5 is 60)}$$

$$= \frac{31 \times 15 - 7 \times 20 - 7 \times 12}{60} = \frac{465 - 140 - 84}{60}$$

$$= \frac{465 - 224}{60} = \frac{241}{60} = 4\frac{1}{60}$$

(d)  $3\frac{5}{8} + 4\frac{3}{4} - 7\frac{1}{5}$  Change to improper fraction

$$= \frac{29}{8} + \frac{19}{4} - \frac{36}{5} \text{ (L.C.M of 8, 4 and 5 is 40)}$$

$$= \frac{29 \times 5 + 19 \times 10 - 36 \times 8}{40} = \frac{145 + 190 - 288}{40}$$

$$= \frac{335 - 288}{40} = \frac{47}{40} = 1\frac{7}{40}$$

2. (a)  $7\frac{1}{8} - 3\frac{3}{4} + 2\frac{3}{6} - 2\frac{1}{2}$  Change to improper fractions

$$= \frac{57}{8} - \frac{15}{4} + \frac{15}{6} - \frac{5}{2} \text{ (L.C.M of 8, 4, 6 and 2 is 24)}$$

$$= \frac{57 \times 3 - 15 \times 6 + 15 \times 4 - 5 \times 12}{24} = \frac{171 - 90 + 60 - 60}{24}$$

$$= \frac{231 - 150}{24} = \frac{81}{24} = 3\frac{9}{24}$$

(b)  $5\frac{1}{3} + 3 - 1\frac{1}{12} - 2\frac{1}{6}$  Change to improper fractions

$$= \frac{16}{3} + \frac{3}{1} - \frac{13}{12} - \frac{13}{6} \text{ (L.C.M of 3, 6 and 12 is 12)}$$

$$= \frac{16 \times 4 + 3 \times 12 - 13 \times 1 - 13 \times 2}{12} = \frac{64 + 36 - 13 - 26}{12}$$

$$= \frac{100 - 39}{12} = \frac{61}{12} = 5\frac{1}{12}$$

### Practice Exercise 7.8

1. Reena bought a notebook = ₹  $2\frac{7}{8}$

Reena bought a pen = ₹  $3\frac{3}{16}$

Reena pay total money for shopkeeper = ₹  $2\frac{7}{8} + 3\frac{3}{16}$

$$= ₹ \left( \frac{23}{8} + \frac{51}{16} \right) = ₹ \left( \frac{23 \times 2 + 51}{16} \right) = ₹ \left( \frac{46 + 51}{16} \right)$$

$$= ₹ \frac{97}{16} \text{ or } ₹ 6\frac{1}{16}$$

2. Ist box weigh =  $3\frac{3}{18}$  kg or  $\frac{57}{18}$  kg

IInd box weigh =  $2\frac{1}{9}$  kg or  $\frac{19}{9}$  kg

IIIRD box weigh =  $7\frac{1}{10}$  or  $\frac{71}{10}$  kg



$$\text{Total weight of three boxes} = \frac{57}{18} \text{ kg} + \frac{19}{9} \text{ kg} + \frac{71}{10} \text{ kg}$$

(L.C.M of 18, 9 and 10 is 90)

$$= \left( \frac{57 \times 5 + 19 \times 10 + 71 \times 9}{90} \right) \text{ kg} = \left( \frac{285 + 190 + 639}{90} \right) \text{ kg}$$

$$= \frac{1114}{90} \text{ kg or } 12\frac{34}{90}$$

$$\text{3. Mr sharma bought milk} = 9\frac{1}{2} \text{ litre}$$

$$\text{Mr sharma consumed milk} = 7\frac{3}{4} \text{ litre}$$

$$\text{Milk left} = 9\frac{1}{2} - 7\frac{3}{4} = \frac{19}{2} - \frac{31}{4} \text{ (L.C.M of 2 and 4 is 4)}$$

$$= \left( \frac{38 - 31}{4} \right) \text{ l} = \frac{7}{4} \text{ litre}$$

So, milk is left  $\frac{7}{4}$  litre.

$$\text{4. Sum of } 6\frac{3}{5} \text{ and } 5\frac{4}{10}$$

$$= \frac{33}{5} + \frac{54}{10} = \frac{33 \times 2 + 54}{10} = \frac{66 + 54}{10} = \frac{120}{10}$$

$$\frac{120}{10} \text{ Subtract from } 13\frac{2}{10}$$

$$= \frac{132}{10} - \frac{120}{10} = \frac{132 - 120}{10} = \frac{12}{10} = \frac{6}{5} = 1\frac{1}{5}$$

### Practice Exercise 7.9

$$\text{1. (a) } \frac{3}{5} \times 15 = 15 \times \frac{3}{5} \text{ (b) } \frac{7}{13} \times 1 = \frac{7}{13} \text{ (c) } \frac{8}{15} \times 0 = 0$$

$$\text{(d) } 0 \times \frac{14}{17} = 0 \text{ (e) } \frac{11}{14} \times 1 = \frac{11}{14} \text{ (f) } \frac{1}{4} \times \frac{3}{5} = \frac{3}{5} \times \frac{1}{4} = \frac{3}{20}$$

$$\text{2. (a) } \frac{2}{7} \times 3 = \frac{6}{7} \text{ (b) } \frac{2}{3} \times 4 = \frac{8}{3} \text{ (c) } 40 \times \frac{3}{4} = 10 \times 3 = 30$$

$$\text{(d) } \frac{11}{13} \times 7 = \frac{77}{13} \text{ (e) } \frac{1}{3} \times 4 = \frac{4}{3} = 1\frac{1}{3} \text{ (f) } 32 \times \frac{5}{8} = 4 \times 5 = 20$$

$$\text{(g) } 90 \times \frac{7}{18} = 5 \times 7 = 35 \text{ (h) } 50 \times \frac{7}{9} = \frac{50 \times 7}{9} = \frac{350}{9} = 38\frac{8}{9}$$

$$\text{3. (a) } \frac{3}{5} \text{ of } \frac{25}{33} = \frac{3}{5} \times \frac{25}{33} = \frac{5}{11} \text{ (b) } \frac{2}{5} \text{ of } \frac{9}{16} = \frac{2}{5} \times \frac{9}{16} = \frac{9}{40}$$

$$\text{(c) } \frac{1}{7} \text{ of } \frac{1}{9} = \frac{1}{7} \times \frac{1}{9} = \frac{1}{63} \text{ (d) } \frac{1}{5} \text{ of } \frac{2}{3} = \frac{1}{5} \times \frac{2}{3} = \frac{2}{15}$$

$$\text{(e) } \frac{1}{3} \text{ of } \frac{1}{5} = \frac{1}{3} \times \frac{1}{5} = \frac{1}{15} \text{ (f) } \frac{4}{11} \text{ of } 4\frac{2}{5} = \frac{4}{11} \times \frac{22}{5} = \frac{4 \times 2}{5} = \frac{8}{5} \text{ or } 1\frac{3}{5}$$

$$\text{(g) } 5\frac{3}{8} \text{ of } \frac{1}{4} = \frac{43}{8} \times \frac{1}{4} = \frac{43}{32} \text{ or } 1\frac{1}{32} \text{ (h) } 3\frac{3}{5} \text{ of } \frac{5}{18} = \frac{18}{5} \times \frac{5}{18} = 1$$

$$\text{4. (a) } 9\frac{1}{2} \times 4\frac{4}{5} = \frac{19}{2} \times \frac{24}{5} = \frac{228}{5} \text{ or } 45\frac{3}{5}$$

$$\text{(b) } 3\frac{3}{5} \times 5\frac{1}{2} = \frac{18}{5} \times \frac{11}{2} = \frac{11 \times 9}{5} = \frac{99}{5} = 19\frac{4}{5}$$

$$\text{(c) } 1\frac{2}{7} \times 3\frac{1}{5} = \frac{9}{7} \times \frac{16}{5} = \frac{144}{35} \text{ or } 4\frac{4}{35}$$

$$(d) 10\frac{3}{8} \times 3\frac{1}{9} = \frac{83}{8} \times \frac{28}{9} = \frac{83 \times 7}{2 \times 9} = \frac{581}{18} = 32\frac{5}{18}$$

$$(e) \frac{3}{10} \times \frac{5}{7} \times 3\frac{2}{3} = \frac{3}{10} \times \frac{5}{7} \times \frac{11}{3} = \frac{11}{14}$$

$$(f) \frac{1}{8} \times \frac{1}{6} \times 1\frac{1}{2} = \frac{1}{8} \times \frac{1}{6} \times \frac{3}{2} = \frac{1}{32} \quad (g) \frac{2}{7} \times \frac{8}{9} \times \frac{1}{4} = \frac{2 \times 2}{7 \times 9} = \frac{4}{63}$$

$$(h) 1\frac{1}{4} \times \frac{2}{5} \times \frac{4}{5} = \frac{5}{4} \times \frac{2}{5} \times \frac{4}{5} = \frac{2}{5}$$

### Practice Exercise 7.10

1. Sonal has marbles = 72

$$\text{Green marbles} = 72 \text{ of } \frac{5}{8} = 72 \times \frac{5}{8} = 9 \times 5 = 45$$

So, the green marbles = 45

$$\begin{aligned} \text{Blue marbles} &= \text{Total marbles} - \text{green marbles} \\ &= 72 - 45 = 27 \end{aligned}$$

So, the blue marbles = 27

2. Total amount of Anil house = ₹ 5,00,000

$$\text{Anil gave payment} = ₹ 5,00,000 \text{ of } \frac{3}{5}$$

$$= ₹ 5,00,000 \times \frac{3}{5} = ₹ 100,000 \times 3 = ₹ 3,00,000$$

3. Hari drank  $\frac{5}{9}$  of 9 litres of juice in a week  
 $= \frac{5}{9} \times 9 \text{ litres} = 5 \text{ litres}$

So, Hari drank 5 litres juice in a week.

4. Seema got 30 marks in the maths test

Arun got  $\frac{1}{3}$  of seema's marks.

$$\text{So } \frac{1}{3} \text{ of } 30 = \frac{1}{3} \times 30 = 10 \text{ marks}$$

So, Anu got 10 marks in maths test.

### Practice Exercise 7.11

1. (a)  $\frac{1}{3}$ , reciprocal of  $\frac{1}{3}$  is  $\frac{3}{1}$  (b)  $\frac{2}{5}$ , reciprocal of  $\frac{2}{5}$  is  $\frac{5}{2}$

(c)  $\frac{9}{13}$ , reciprocal of  $\frac{9}{13}$  is  $\frac{13}{9}$  (d)  $\frac{4}{2}$ , reciprocal of  $\frac{4}{2}$  is  $\frac{2}{4}$

(e)  $3\frac{4}{5} = \frac{19}{5}$ , reciprocal of  $\frac{19}{5}$  is  $\frac{5}{19}$  (f)  $8\frac{1}{2} = \frac{17}{2}$ , reciprocal of  $\frac{17}{2}$  is  $\frac{2}{17}$

(g)  $1\frac{3}{4} = \frac{7}{4}$ , reciprocal of  $\frac{7}{4}$  is  $\frac{4}{7}$  (h)  $5\frac{7}{9} = \frac{52}{9}$ , reciprocal of  $\frac{52}{9}$  is  $\frac{9}{52}$

2. (a)  $\frac{6}{7} \div \frac{7}{6} = 1$  (b)  $0 \div \frac{7}{13} = 0$  (c)  $\frac{3}{5} \div \frac{3}{5} = 1$  (d)  $3\frac{4}{5} \div 1 = 3\frac{4}{5}$

3. (a)  $\frac{6}{7}$  by 3 =  $\frac{6}{7} \div 3 = \frac{2}{7}$  (b)  $\frac{12}{15}$  by 4 =  $\frac{12}{15} \div 4 = \frac{1}{5}$

(c)  $\frac{21}{25}$  by 7 =  $\frac{21}{25} \div 7 = \frac{3}{25}$  (d)  $\frac{12}{23}$  by 6 =  $\frac{12}{23} \div 6 = \frac{2}{23}$

4. (a)  $21 \div \frac{7}{4} = 21 \times \frac{4}{7} = 12$  (b)  $2\frac{4}{5} \div \frac{7}{2} = \frac{14}{5} \div \frac{7}{2} = \frac{14}{5} \times \frac{2}{7} = \frac{4}{5}$   
 (c)  $7\frac{1}{5} \div \frac{3}{5} = \frac{36}{5} \div \frac{3}{5} = \frac{36}{5} \times \frac{5}{3} = 12$  (d)  $4\frac{4}{5} \div 6 = \frac{24}{5} \div 6 = \frac{24}{5} \times \frac{1}{6} = \frac{4}{5}$   
 (e)  $5\frac{1}{3} \div 4 = \frac{16}{3} \div 4 = \frac{16}{3} \times \frac{1}{4} = \frac{4}{3}$  (f)  $3\frac{3}{4} \div \frac{5}{2} = \frac{15}{4} \div \frac{5}{2} = \frac{15}{4} \times \frac{2}{5} = \frac{3}{2}$   
 (g)  $7\frac{6}{7} \div \frac{11}{14} = \frac{55}{7} \div \frac{11}{14} = \frac{55}{7} \times \frac{14}{11} = 5 \times 2 = 10$  (h)  $3\frac{3}{8} \div 18 = \frac{27}{8} \times \frac{1}{18} = \frac{3}{16}$

### Practice Exercise 7.12

1. The other number =  $2\frac{3}{8} \div \frac{4}{7}$   
 $= 2\frac{3}{8} \times \frac{7}{4} = \frac{19}{8} \times \frac{7}{4} = \frac{133}{32} = 4\frac{5}{32}$   
 2.  $15\frac{1}{3} \div \frac{2}{3} = \frac{46}{3} \div \frac{2}{3} = \frac{46}{3} \times \frac{3}{2} = 23$   
 3. The length of a rope =  $5\frac{3}{9}$  m or  $\frac{48}{9}$  m

The length of a one peice of rope =  $1\frac{1}{3}$  or  $\frac{4}{3}$

So, the number of peices of a rope =  $\frac{48}{9} \div \frac{4}{3} = \frac{48}{9} \times \frac{3}{4} = 4$

So, the rope has been divided 4 equal parts.

4.  $\frac{10}{13}$  of chocolate is to be divided among 5 children.

fraction of chocolate will each child get =  $\frac{10}{13} \div 5 = \frac{10}{13} \times \frac{1}{5} = \frac{2}{13}$

### Mental math zone

1. (a)  $\frac{11}{7}$  (b) 1 (c) improper fraction  
 2. (a)  $\frac{3}{5} = \frac{6}{10}, \frac{9}{15}, \frac{12}{20}, \frac{15}{25}, \frac{18}{30}$  (b)  $\frac{7}{9} = \frac{14}{18}, \frac{21}{27}, \frac{28}{36}, \frac{35}{45}, \frac{42}{54}$   
 (c)  $\frac{8}{11} = \frac{16}{22}, \frac{24}{33}, \frac{32}{44}, \frac{40}{55}, \frac{48}{66}$  3. (a)  $\frac{3}{25} \times \frac{5}{12} = \frac{1}{5} \times \frac{1}{4} = \frac{1}{20}$   
 (b)  $\frac{21}{60} \times \frac{30}{42} = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$  (c)  $\frac{10}{27} \times \frac{18}{20} = \frac{2}{3} \times \frac{1}{2} = \frac{1}{3}$  (d)  $\frac{24}{35} \times \frac{21}{36} = \frac{2}{5}$   
 (e)  $3\frac{1}{4} \times \frac{12}{13} = \frac{13}{4} \times \frac{12}{13} = \frac{12}{4} = 3$  (f)  $3\frac{5}{6} \times \frac{6}{23} = \frac{23}{6} \times \frac{14}{3} = 1$

### Multiple Choice Questions (MCQs)

1.  $\frac{24}{36} = \frac{24 \div 12}{36 \div 12} = \frac{2}{3}$  2.  $\frac{1}{5}$  3. Unlike 4. less than

### Practice Exercise 8.1

1. (a) 1.1 (b) 0.24 (c) 1.7 (d) 1.2 (e) 0.229 (f) 0.6  
 2. (a) 2.45 = Two point four five (b) 5.09 = Five point zero nine  
 (c) 21.35 = Twenty one point three five (d) 315.46 = Three hundred fifteen point four six (e) 7.345 = Seven point three four five (f) 5.015 = Five point zero one five

3. (a) tens, 70 (b) tenths,  $\frac{8}{10}$  (c) thousandths,  $\frac{3}{1000}$  (d) hundredths  
 $\frac{2}{100}$  4. 20; 8; 0.3; 0.02; 0.004 5.  $50 + 1 + \frac{4}{10} + \frac{5}{100} + \frac{6}{1000}$  6. (a) yes  
 (b) yes (c) no (d) yes 7. (a) < (b) > (c) > (d) <

8. (a) 
$$\begin{array}{r} \boxed{1} \boxed{2} \\ 2.850 \\ 2.806 \\ + 34.700 \\ \hline 40.356 \end{array}$$
 (b) 
$$\begin{array}{r} 11.01 \\ 1.10 \\ + 1.56 \\ \hline 13.67 \end{array}$$
 (c) 
$$\begin{array}{r} \boxed{1} \\ 12.060 \\ 61.300 \\ + 1.453 \\ \hline 74.813 \end{array}$$

9. (a) 
$$\begin{array}{r} \boxed{6} \boxed{9} \boxed{10} \\ 7.00 \\ - 3.21 \\ \hline 3.79 \end{array}$$
 (b) 
$$\begin{array}{r} \boxed{3} \boxed{10} \boxed{9} \boxed{10} \\ 4.100 \\ - 3.107 \\ \hline 0.993 \end{array}$$

(c) 
$$\begin{array}{r} \boxed{1} \boxed{10} \\ 12.01 \\ - 10.11 \\ \hline 1.90 \end{array}$$
 (d) 
$$\begin{array}{r} \boxed{2} \boxed{15} \boxed{10} \\ 36.20 \\ - 16.28 \\ \hline 19.92 \end{array}$$

10. (a) 
$$\begin{array}{r} \boxed{2} \boxed{2} \\ 5.34 \\ \times 17 \\ \hline 3738 \\ + 534 \times \\ \hline 90.78 \end{array}$$
 (b) 
$$\begin{array}{r} \boxed{1} \boxed{2} \\ 1.25 \\ \times 15 \\ \hline 625 \\ + 125 \times \\ \hline 18.75 \end{array}$$

(c) 
$$\begin{array}{r} \boxed{1} \\ \boxed{4} \\ 7.8 \\ \times 25 \\ \hline 390 \\ + 156 \times \\ \hline 195.0 \end{array}$$
 (d) 
$$\begin{array}{r} \boxed{2} \boxed{2} \boxed{1} \\ 46.75 \\ \times 30 \\ \hline 0000 \\ + 14025 \times \\ \hline 1402.50 \end{array}$$

11. (a) 
$$\begin{array}{r} 9 \overline{) 3.75} (0.416 \\ - 0 \\ \hline 37 \\ - 36 \\ \hline 15 \\ - 9 \\ \hline 60 \\ - 54 \\ \hline 6 \end{array}$$
 (b) 
$$\begin{array}{r} 5 \overline{) 15.625} (3.125 \\ - 15 \\ \hline 6 \\ - 5 \\ \hline 12 \\ - 10 \\ \hline 25 \\ - 25 \\ \hline 0 \end{array}$$

Q = 0.416 Q = 3.125



2. (a)  $\frac{25}{100} = \frac{1}{4}$  (b)  $\frac{53}{10} = 5\frac{3}{10}$  (c)  $\frac{8839}{1000} = 8\frac{839}{1000}$  (d)  $\frac{2384}{100} = 23\frac{84}{100}$   
 (e)  $\frac{4318}{100} = 43\frac{18}{100}$  (f)  $\frac{62143}{1000} = 62\frac{143}{1000}$  (g)  $\frac{146}{10} = 14\frac{6}{10}$  (h)  $\frac{7315}{100} = 73\frac{15}{100}$

### Practice Exercise 8.6

1. (a) 
$$\begin{array}{r} 24.320 \\ + 36.743 \\ \hline 161.063 \end{array}$$
 (b) 
$$\begin{array}{r} 46.100 \\ + 23.431 \\ \hline 169.531 \end{array}$$

(c) 
$$\begin{array}{r} 45.240 \\ + 28.882 \\ \hline 74.122 \end{array}$$
 (d) 
$$\begin{array}{r} 15.623 \\ + 17.010 \\ \hline 32.633 \end{array}$$

(e) 
$$\begin{array}{r} 15.100 \\ 26.420 \\ + 31.137 \\ \hline 72.657 \end{array}$$
 (f) 
$$\begin{array}{r} 15.310 \\ 17.600 \\ + 26.136 \\ \hline 59.046 \end{array}$$

2. (a) 
$$\begin{array}{r} 56.320 \\ - 29.917 \\ \hline 26.403 \end{array}$$
 (b) 
$$\begin{array}{r} 81.91 \\ - 24.13 \\ \hline 57.78 \end{array}$$

(c) 
$$\begin{array}{r} 18.790 \\ - 12.641 \\ \hline 61.49 \end{array}$$
 (d) 
$$\begin{array}{r} 87.116 \\ - 36.900 \\ \hline 50.216 \end{array}$$

(e) 
$$\begin{array}{r} 35.642 \\ - 12.530 \\ \hline 23.112 \end{array}$$
 (f) 
$$\begin{array}{r} 43.90 \\ - 22.513 \\ \hline 21.377 \end{array}$$

3. (a) 7.528 (b) 40.542 (c) 790.312 (d) 625.728 (e) 261.55 (f) 11.9715

4. 
$$\begin{array}{r} 50.00 \\ - 32.46 \\ \hline 17.54 \end{array}$$
 5. 
$$\begin{array}{r} 43.570 \\ + 24.055 \\ \hline 67.625 \end{array}$$
 6. 
$$\begin{array}{r} 65.00 \\ - 36.50 \\ \hline 28.50 \end{array}$$

### Practice Exercise 8.7

1. (a) 19.4502 (b) 20.088 (c) 6.192 (d) 2.8542 (e) 81.536 (f) 5099.37  
 2. (a) 510 (b) 8400 (c) 9143 (d) 43 (e) 1862 (f) 582 (g) 84300  
 (h) 2513 (i) 26240

3. (a) 
$$\begin{array}{r} \boxed{1} \boxed{1} \boxed{1} \\ 39.84 \\ \times 14 \\ \hline 15936 \\ + 3984 \times \\ \hline \boxed{557.76} \end{array}$$
- (b) 
$$\begin{array}{r} \boxed{1} \\ \boxed{2} \boxed{3} \\ 34.7 \\ \times 25 \\ \hline 1735 \\ + 694 \times \\ \hline \boxed{867.5} \end{array}$$
- (c) 
$$\begin{array}{r} \boxed{2} \\ 37.13 \\ \times 30 \\ \hline 0000 \\ + 11139 \times \\ \hline \boxed{1113.90} \end{array}$$
- (d) 
$$\begin{array}{r} \boxed{2} \boxed{1} \\ 19.6 \\ \times 3 \\ \hline \boxed{58.8} \end{array}$$
- (e) 
$$\begin{array}{r} \boxed{1} \boxed{2} \\ 32.4 \\ \times 5 \\ \hline \boxed{162.0} \end{array}$$
- (f) 
$$\begin{array}{r} \boxed{1} \\ 24.632 \\ \times 12 \\ \hline 49264 \\ + 24632 \times \\ \hline \boxed{295.584} \end{array}$$
- (g) 
$$\begin{array}{r} \boxed{3} \\ 70.38 \\ \times 4.1 \\ \hline 7035 \\ + 28122 \times \\ \hline \boxed{288.258} \end{array}$$
- (h) 
$$\begin{array}{r} \boxed{1} \\ 46.1 \\ \times 102 \\ \hline 922 \\ 000 \times \\ + 461 \times \times \\ \hline \boxed{4702.2} \end{array}$$
- (i) 
$$\begin{array}{r} \boxed{2} \\ 50.36 \\ \times 41 \\ \hline 5036 \\ + 20124 \times \\ \hline \boxed{2062.76} \end{array}$$
4. (a) 
$$\begin{array}{r} 32.1 \\ \times 4.32 \\ \hline 642 \\ 963 \times \\ + 1284 \times \times \\ \hline \boxed{138.672} \end{array}$$
- (b) 
$$\begin{array}{r} 35.4 \\ \times 1.2 \\ \hline 708 \\ + 354 \times \\ \hline \boxed{42.48} \end{array}$$
- (c) 
$$\begin{array}{r} 84.2 \\ \times 2.6 \\ \hline 5052 \\ + 1684 \times \\ \hline \boxed{218.92} \end{array}$$
- (d) 
$$\begin{array}{r} 96.6 \\ \times 1.2 \\ \hline 1932 \\ + 966 \times \\ \hline \boxed{115.092} \end{array}$$
- (e) 
$$\begin{array}{r} 73.43 \\ \times 3.2 \\ \hline 14686 \\ + 22029 \times \\ \hline \boxed{234.976} \end{array}$$
- (f) 
$$\begin{array}{r} 49.63 \\ \times 1.1 \\ \hline 4963 \\ + 4963 \times \\ \hline \boxed{54.593} \end{array}$$
- (g) 
$$\begin{array}{r} 70.38 \\ \times 4.1 \\ \hline 7038 \\ + 28152 \times \\ \hline \boxed{288.558} \end{array}$$
- (h) 
$$\begin{array}{r} 46.1 \\ \times 102 \\ \hline 922 \\ 000 \times \\ + 461 \times \times \\ \hline \boxed{4702.2} \end{array}$$
- (i) 
$$\begin{array}{r} 384.1 \\ \times 9.6 \\ \hline 23046 \\ + 34569 \times \\ \hline \boxed{3687.36} \end{array}$$

## Practice Exercise 8.8

1. (a) 0.53 (b) 0.846 (c) 0.743 (d) 0.2693 2. (a) 0.34 (b) 0.043  
(c) 0.2743 (d) 0.5132 (e) 61.349 (f) 0.07431

3. (a) 
$$\begin{array}{r} 7 \overline{) 8.75} (1.25 \\ \underline{-7} \phantom{0} \phantom{0} \phantom{0} \\ 17 \phantom{0} \phantom{0} \phantom{0} \\ \underline{-14} \phantom{0} \phantom{0} \phantom{0} \\ 35 \phantom{0} \phantom{0} \phantom{0} \\ \underline{-35} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(b) 
$$\begin{array}{r} 5 \overline{) 37.5} (7.5 \\ \underline{-35} \phantom{0} \phantom{0} \phantom{0} \\ 25 \phantom{0} \phantom{0} \phantom{0} \\ \underline{-25} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(c) 
$$\begin{array}{r} 5 \overline{) 74.85} (14.97 \\ \underline{-5} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 24 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-20} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 48 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-45} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 35 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-35} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(d) 
$$\begin{array}{r} 4 \overline{) 693.2} (173.3 \\ \underline{-4} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 29 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-28} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 13 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-12} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 12 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-12} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(e) 
$$\begin{array}{r} 3 \overline{) 186.39} (62.13 \\ \underline{-18} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 6 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-6} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 3 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-3} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 9 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-9} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(f) 
$$\begin{array}{r} 11 \overline{) 3.795} (0.345 \\ \underline{-0} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 37 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-33} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 49 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-44} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 55 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-55} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

4. (a) 
$$\begin{array}{r} 2 \overline{) 108.4} (54.2 \\ \underline{-10} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 8 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-8} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 4 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{4} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(b) 
$$\begin{array}{r} 5 \overline{) 4.45} (0.89 \\ \underline{-40} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 45 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-45} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(c) 
$$\begin{array}{r} 9 \overline{) 3.69} (0.41 \\ \underline{-36} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 9 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-9} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(d) 
$$\begin{array}{r} 12 \overline{) 8.16} (0.68 \\ \underline{-72} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 96 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-96} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(e) 
$$\begin{array}{r} 14 \overline{) 9.38} (0.67 \\ \underline{-84} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 98 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-98} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(f) 
$$\begin{array}{r} 5 \overline{) 11.725} (2.345 \\ \underline{-10} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 17 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-15} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 22 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-20} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 25 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-25} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

5. (a) 
$$\begin{array}{r} 14 \overline{) 73.36} (5.24 \\ \underline{-70} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 33 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-28} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 56 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-56} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(b) 
$$\begin{array}{r} 63 \overline{) 243.18} (38.6 \\ \underline{-189} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 541 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-504} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 378 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-378} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$

(c) 
$$\begin{array}{r} 16 \overline{) 792.72} (49.545 \\ \underline{-64} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 152 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-144} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 87 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{-80} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 72 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{64} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ 80 \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \underline{80} \phantom{0} \phantom{0} \phantom{0} \phantom{0} \\ \times \end{array}$$



$$\begin{array}{r}
 \text{(d) } 25 \overline{) 3.528} \quad (0.14112) \quad \text{(e) } 43 \overline{) 29.24} \quad (0.68) \quad \text{(f) } 1250 \overline{) 3625} \quad (2.9) \\
 \begin{array}{r}
 \underline{-25} \phantom{00} \\
 102 \phantom{0} \\
 \underline{-100} \phantom{0} \\
 28 \phantom{0} \\
 \underline{-25} \phantom{0} \\
 30 \phantom{0} \\
 \underline{-25} \phantom{0} \\
 50 \phantom{0} \\
 \underline{-50} \phantom{0} \\
 \times
 \end{array}
 \end{array}$$

$$\begin{array}{lcl}
 \text{6. A car covered distance in first hour} & = & 25.35 \text{ km} \\
 \text{A car covered distance in second hour} & = & 26.46 \text{ km} \\
 \text{A car covered distance in third hour} & = & + 23.31 \text{ km} \\
 \text{Total distance covered in three hours} & = & \underline{75.12 \text{ km}}
 \end{array}$$

So, the total distance covered in three hours is 75.12 km

$$\begin{array}{l}
 \text{7. 26.5 litres of milk is to be divided into 14 bottles.} \quad 14 \overline{) 26.5} \quad (1.89) \\
 \begin{array}{r}
 \underline{-14} \phantom{00} \\
 125 \phantom{0} \\
 \underline{-112} \phantom{0} \\
 130 \phantom{0} \\
 \underline{-126} \phantom{0} \\
 4
 \end{array}
 \end{array}$$

So, each bottle contained 1.89 litre milk.

$$\begin{array}{lcl}
 \text{8. The cost of 1 pen} & = & ₹ 13.65 \\
 \text{The cost of 12 pen} & = & ₹ 13.65 \times 12 \\
 & = & ₹ 163.8
 \end{array}$$

So, the cost of 12 pen is ₹ 163.8.

$$\begin{array}{lcl}
 \text{9. A train covered a distance in 15 hours} & = & 1297.36 \text{ km} \\
 \text{A train covered a distance in 10 hours} & = & - 896.93 \text{ km} \\
 \text{A train covered a distance in 5 hours} & = & \underline{400.43 \text{ km}}
 \end{array}$$

So, the train covered a distance 400.43 km in 5 hours

$$\begin{array}{lcl}
 \text{10. The cost of 25 pencils is ₹ 736.32} \\
 \text{The cost of 1 pencil is} & ₹ 736.32 \div 25 \\
 & = ₹ 29.45
 \end{array}$$

So, the cost of 1 pencils is ₹ 29.45.

### Mental math zone

1. (a) 229.34 (b) two thousand three hundred twenty one point seven two three (c) Decimal form  $\rightarrow 4000 + 900 + 70 + 2 + 0.01 + 0.05$ ; Fraction expansion  $\rightarrow 4000 + 900 + 70 + 2 + \frac{1}{10} + \frac{5}{100}$   
 (d) 0.017, 0.03, 1.2 (e)  $\frac{3}{100}$ ,  $\frac{234}{100}$ ,  $\frac{15103}{1000}$ , (f) 5.306, 5.36, 5.603,

5.63 (g) 5.721, 5.712, 5.271, 5.217

2. (a)  $>$  (b)  $=$  (c)  $<$

3. (a) 
$$\begin{array}{r} 29.640 \\ + 34.131 \\ \hline 63.771 \end{array}$$
 (b) 
$$\begin{array}{r} 300.12 \\ - 123.79 \\ \hline 176.33 \end{array}$$
 (c) 
$$\begin{array}{r} 18.24 \\ \times 3 \\ \hline 54.72 \end{array}$$

(d) 
$$\begin{array}{r} 7.39 \\ \times 1.2 \\ \hline 1478 \\ + 739 \times \\ \hline 8.868 \end{array}$$
 (e) 
$$\begin{array}{r} 60.24 \\ - 60 \\ \hline 24 \\ - 24 \\ \hline \times \end{array}$$
 (f) 
$$\begin{array}{r} 27.069 \\ - 27 \\ \hline 069 \\ - 63 \\ \hline 6 \end{array}$$

4. (a) False (b) True (c) True (d) False

### Multiple Choice Questions (MCQs)

1. 0.5 2. 0.001 3. 0.34 4. 16.55 m 5. 0.276

### Practice Exercise 9.1

1. (a) 500 (b) 24 (c) 24 (d) 350

2. (a) ₹ 30.25 (b) ₹ 0.75 (c) 735 P (d) 33 P (e) ₹ 3.75 (f) 425 P

### Practice Exercise 9.2

We know that ₹ 1 = 100 paise

1. (a) 24 paise = ₹  $\frac{24}{100}$  = ₹ 0.24 (b) 135 paise = ₹  $\frac{135}{100}$  = ₹ 1.35

(c) 28 paise = ₹  $\frac{28}{100}$  = ₹ 0.28 (d) 1275 paise = ₹  $\frac{1275}{100}$  = ₹ 12.75

(e) 34517 paise = ₹  $\frac{34517}{100}$  = ₹ 34.517 (f) 390 paise = ₹  $\frac{390}{100}$  = ₹ 3.90

(g) 55 paise = ₹  $\frac{55}{100}$  = ₹ 0.55 (h) 60 paise = ₹  $\frac{60}{100}$  = ₹ 0.60

2. (a) ₹ 0.80 =  $0.80 \times 100 = 80$  P (b) ₹ 7.50 =  $7.50 \times 100 = 750$  P

(c) ₹ 5.50 =  $5.50 \times 100 = 550$  P (d) ₹ 0.70 =  $0.70 \times 100 = 70$  P

(e) ₹ 0.69 =  $0.69 \times 100 = 69$  P (f) ₹ 0.45 =  $0.45 \times 100 = 45$  P

(g) ₹ 0.35 =  $0.35 \times 100 = 35$  (h) ₹ 4.80 =  $4.80 \times 100 = 480$  P

### Practice Exercise 9.3

1. (a) 
$$\begin{array}{r} 256.75 \\ + 22.45 \\ \hline 279.20 \end{array}$$
 (b) 
$$\begin{array}{r} 156.50 \\ + 34.70 \\ \hline 191.20 \end{array}$$
 (c) 
$$\begin{array}{r} 392.29 \\ + 44.75 \\ \hline 437.04 \end{array}$$
 (d) 
$$\begin{array}{r} 445.35 \\ + 55.42 \\ \hline 500.77 \end{array}$$

2. (a) 
$$\begin{array}{r} 124.85 \\ - 39.63 \\ \hline 85.22 \end{array}$$
 (b) 
$$\begin{array}{r} 350.20 \\ - 284.50 \\ \hline 65.70 \end{array}$$
 (c) 
$$\begin{array}{r} 500.00 \\ - 390.20 \\ \hline 109.80 \end{array}$$
 (d) 
$$\begin{array}{r} 310.75 \\ - 126.11 \\ \hline 184.64 \end{array}$$

<b>3.</b> $\begin{array}{r} ₹1000.00 \\ - ₹589.55 \\ \hline 410.45 \end{array}$	<b>4.</b> $\begin{array}{r} ₹36.35 \\ + ₹235.85 \\ \hline 272.20 \end{array}$	<b>5.</b> $\begin{array}{r} ₹246.67 \\ + ₹457.20 \\ \hline 703.87 \end{array}$	<b>6.</b> $\begin{array}{r} ₹710.30 \\ - ₹310.50 \\ \hline 399.80 \end{array}$
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### Practice Exercise 9.4

1. Albert bought potatoes	= ₹ 30.70
Albert bought onion	= ₹ 45.20
Albert bought tomatoes	= + ₹ 50.50
Albert spend in all	= <u>₹126.40</u>

So, Albert spend in all vegetables is ₹ 76.40

2. Kapil spends on a leather belt	= ₹ 220.50
Kapil spends on a wallet	= + ₹ 135.50
Kapil spends total money	= <u>₹356.00</u>

Kapil had total amount	= ₹ 500
Kapil spends money	= - ₹ 356
Amount left with Yogesh	= <u>₹144</u>

3. Kimmy bought a perfume	= ₹ 307.50
Kimmy bought a birthday card	= + ₹ 127.50
Total amount spend by Kimmi	= <u>₹435.00</u>

4. Mr Gupta buys an old washing machine	= ₹ 3175.75
Mr Gupta spends on its repairing	= + ₹ 763.50
Total amount spent by Gupta	= <u>₹3939.25</u>

5. Lalit had amount	= ₹ 800.00
Lalit bought a pair Jeans	= - ₹ 625.75
Lalit had left money	= <u>₹174.25</u>

6. Simran had amount	= <u>₹500.00</u>
Simran buys a table lamp	= - ₹ 312.75
Simran had left money	= <u>₹187.25</u>

### Practice Exercise 9.5

<b>1. (a)</b> $\begin{array}{r} ₹345.50 \\ \times 4 \\ \hline ₹1382.00 \end{array}$	<b>(b)</b> $\begin{array}{r} ₹760.85 \\ \times 2 \\ \hline ₹1521.70 \end{array}$	<b>(c)</b> $\begin{array}{r} ₹365.20 \\ \times 5 \\ \hline ₹1826.00 \end{array}$
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2. (a)  $\begin{array}{r} 6 \overline{) 565.34} \quad (94.22 \\ \underline{-55} \phantom{.34} \\ 25 \phantom{.34} \\ \underline{-24} \phantom{.34} \\ 13 \phantom{.34} \\ \underline{-12} \phantom{.34} \\ 14 \\ \underline{-12} \\ 2 \end{array}$  (b)  $\begin{array}{r} 2 \overline{) 8631.20} \quad (4315.6 \\ \underline{-8} \phantom{631.20} \\ 6 \phantom{31.20} \\ \underline{-6} \phantom{31.20} \\ 3 \phantom{1.20} \\ \underline{-2} \phantom{1.20} \\ 11 \\ \underline{-10} \\ 12 \\ \underline{-12} \\ 0 \end{array}$  (c)  $\begin{array}{r} 13 \overline{) 9341.30} \quad (718.56 \\ \underline{-91} \phantom{30} \\ 24 \phantom{30} \\ \underline{-23} \phantom{30} \\ 11 \phantom{30} \\ \underline{-10} \phantom{30} \\ 130 \\ \underline{-126} \\ 40 \\ \underline{-39} \\ 10 \\ \underline{-9} \\ 10 \\ \underline{-9} \\ 10 \end{array}$

### Practice Exercise 9.6

1. ₹ 13 cost of the 1 pen

₹ 157.48 cost of the pen =  $157.480 \div 13$

$$\begin{array}{r} 13 \overline{) 157.48} \quad (12.11 \\ \underline{-13} \phantom{.48} \\ 27 \phantom{.48} \\ \underline{-26} \phantom{.48} \\ 14 \\ \underline{-13} \\ 18 \\ \underline{-17} \\ 10 \end{array}$$

12 pen and amount left 1.48

2. 9 notebook cost = ₹ 1085.20

1 notebook costs =  $₹ 1085.20 \div 9$   
= ₹ 120.57

So, 1 notebook cost is ₹ 120.57

3. The price of 1 packet of milk = ₹ 26.50

The price of 8 packets of milk =  $₹ 26.50 \times 8$   
= ₹ 212

So, the cost of 8 packet of milk = ₹ 212

4. The cost of 1 silver cup = ₹ 1526.35

The cost of 6 silver cup =  $₹ 1526.35 \times 6$   
= ₹ 12210.8

Rajeya pay the money is ₹ 12210.8

### Mental math zone

1. (a)  $\begin{array}{r} ₹ 2632.50 \\ + ₹ 1000.00 \\ \hline ₹ 3632.50 \end{array}$  (b)  $\begin{array}{r} ₹ 378.39 \\ + ₹ 1000.00 \\ \hline ₹ 478.39 \end{array}$  (c)  $\begin{array}{r} ₹ 436.40 \\ + ₹ 1000.00 \\ \hline ₹ 446.40 \end{array}$

2. (a)  $\begin{array}{r} ₹ 267.50 \\ - ₹ 1000.00 \\ \hline ₹ 167.50 \end{array}$  (b)  $\begin{array}{r} ₹ 324.00 \\ - ₹ 1000.00 \\ \hline ₹ 224.00 \end{array}$  (c)  $\begin{array}{r} ₹ 404.75 \\ - ₹ 1000.00 \\ \hline ₹ 394.75 \end{array}$

4. (a)  $\overbrace{6 \quad 8 \quad 7 \quad 3 \quad 2 \quad 0}^{145.53}$

(b)  $\overbrace{13 \quad 1 \quad 4 \quad 2 \quad 9 \quad 7 \quad 5}^{109.98}$

**1. 3675 paise 2. ₹ 0.50 3. ₹ 401.40**

1. (a)  $\frac{3}{5} = \frac{3 \times 20}{20 \times 5} = \frac{60}{100}$  (b)  $\frac{11}{50} = \frac{11 \times 2}{50 \times 2} = \frac{22}{100}$   
 (c)  $\frac{15}{25} = \frac{15 \times 4}{25 \times 4} = \frac{60}{100}$  (d)  $\frac{27}{20} = \frac{27 \times 5}{20 \times 5} = \frac{135}{100}$   
 (e)  $3\frac{1}{4} = \frac{13}{4} = \frac{13 \times 25}{4 \times 25} = \frac{325}{100}$

**2.** (a)  $45 = \frac{45 \times 100}{100} \% = 4500\%$  (b)  $\frac{22}{10} = \frac{22 \times 100}{10 \times 100} \% = 220\%$

$$\begin{aligned} \text{(c) } \frac{1}{7} &= \frac{1 \times 100}{7 \times 100} \% \\ &= 14.28\% \text{ or } 4\frac{2}{7} \% \end{aligned} \quad \begin{aligned} \text{(d) } 3\frac{1}{11} &= \frac{34}{11} = \frac{34 \times 100}{11 \times 100} \% \\ &= 3.09\% \text{ or } 3\frac{1}{11} \% \end{aligned}$$

$$(e) \ 1\frac{2}{5} = \frac{7}{5} = \frac{7 \times 100}{5 \times 100} \% = 140\%$$

**3. (a)**  $0.6 = 0.6 \times 100\% = \frac{6}{10} \times 100\% = 60\%$

$$(b) 0.3 = 0.3 \times 100\% = \frac{3}{10} \times 100\% = 30\%$$

(c)  $0.43 = 0.43 \times 100\% = \frac{43}{100} \times 100\% = 43\%$

$$(d) 0.55 = 0.55 \times 100\% = \frac{55}{100} \times 100\% = 55\%$$

$$(e) 0.08 = 0.08 \times 100\% = \frac{08}{100} \times 100\% = 8\%$$

**1.** (a) 10 (b) 75 (c) 20 (d) 50 (e) 75 (f) 22.5

$$1. (a) 25\% \text{ of } ₹ 4500 = \frac{25}{100} \times ₹ 4500 = ₹ 25 \times 45 = ₹ 1125$$

$$(b) 50\% \text{ of ₹ } 2700 = \frac{50}{100} \times ₹ 2700 = ₹ 50 \times 27 = ₹ 1350$$

$$(c) 4\frac{1}{2}\% \text{ of } 4800 \text{ l} = \frac{9}{2} \text{ of } 4800 \text{ l} = \frac{9 \times 4800}{2 \times 100} \text{ l} = 24 \times 9 \text{ l} = 216 \text{ l}$$

$$(d) 60\% \text{ of } 120 \text{ days} = \frac{60}{100} \times 120 \text{ day} = 6 \times 12 \text{ day} = 72 \text{ day}$$

$$2. (a) 12 \text{ hours out of } 1 \text{ day} = \frac{12}{24} \times 100\% = \frac{1}{2} \times 100\% = 50\%$$

$$(b) 72 \text{ metres out of } 100 \text{ metre} = \frac{72}{100} = \frac{72}{100} \times 100\% = 72\%$$

3. Ashu got marks = 25% of 80

$$= \frac{25}{100} \text{ of } 80 = \frac{25}{100} \times 80 = 20$$

$$4. \text{ Riya obtained } 210 \text{ marks out of } 300 = \frac{210}{300} \times 100\% = \frac{210}{3} = 70\%$$

$$5. 104 \text{ students out of } 160 = \frac{104}{160} \times 100\%$$

$$= \frac{104 \times 100}{160} \% = 13 \times 5\% = 65\%$$

Persent of failed sutdent = 65%

And Persent of passed student =  $(100 - 65)\% = 35\%$

6. Number of girls in a picnic group = 20% of 60

$$= \frac{20}{100} \times 60 = 2 \times 6 = 12$$

So, the number of boys in a picnic group = Total student – numbers of girls =  $60 - 12 = 48$

### Practice Exercise 10.4

1. (a)  $P = ₹ 5000$ ,  $T = 3 \text{ years}$ ,  $R = 6\%$  S.I = ?

$$S.I = \frac{P \times R \times T}{100} = ₹ \frac{5000 \times 6 \times 3}{100} = ₹ 900$$

$$\text{Amount} = P + S.I = ₹ (5000 + 900) = ₹ 5900$$

2.  $R = 5\%$ ,  $T = 1\frac{1}{3}$ ,  $P = ₹ 8000$ , S.I = ?

$$S.I = \frac{P \times R \times T}{100} = \frac{8000 \times 5 \times 4}{3 \times 100} = ₹ 533.33$$

$$\text{Amount} = P + S.I = ₹ (8000 + 533.33) = ₹ 8533.33$$

3.  $P = ₹ 3150$ ,  $T = 3 \text{ years } 4 \text{ months} = 3\frac{1}{3} = \text{years}$   $R = 12\%$

$$S.I = \frac{P \times R \times T}{100} = \frac{3150 \times 10 \times 12}{3 \times 100} = ₹ 1260$$

$$\text{Amount} = P + S.I = ₹ 3150 + ₹ 1260 = ₹ 4410$$

4.  $P = ₹ 8000$ ,  $T = 1 \text{ year } 3 \text{ month} = 1\frac{1}{4}$ ,  $R = 12\frac{1}{2}\% = \frac{25}{2}\%$

$$S.I = \frac{P \times R \times T}{100} = ₹ \frac{8000 \times 25 \times 5}{2 \times 4 \times 100} = ₹ 1250$$

$$\text{Amount} = P + S.I = ₹ (8000 + 1250) = ₹ 9250$$

## Practice Exercise 10.5

1. (a)  $P = ₹ 300$ ,  $S.I = ₹ 126$ ,  $R = 7\%$   $T = ?$

$$S.I = \frac{P \times R \times T}{100}; T = \frac{S.I \times 100}{P \times R} = \frac{126 \times 100}{300 \times 7} = 6, T = 6 \text{ years}$$

(b)  $P = ₹ 8000$ ,  $S.I = ₹ 1200$ ,  $R = 6\%$ ,  $T = ?$

$$T = \frac{S.I \times 100}{P \times R} = \frac{1200 \times 100}{8000 \times 6} = 2.5$$

$$T = 2.5 \text{ years or } 2\frac{1}{2} \text{ year}$$

2. (a)  $S.I = ₹ 144$ ,  $R = 5\%$  per annum,  $T = 3$  years

$$P = \frac{S.I \times 100}{R \times T} = \frac{144 \times 100}{5 \times 3} = ₹ 960$$

(b)  $S.I = ₹ 1038$ ,  $R = 15\%$ ,  $T = 2\frac{1}{2}$  year  $= \frac{5}{2}$  year

$$P = \frac{S.I \times 100}{R \times T} = \frac{1038 \times 2 \times 100}{15 \times 5} = ₹ 2768$$

3.  $R = ?$ ,  $P = ₹ 6000$ ,  $A = 8520$ ,  $T = 3$  year

$$S.I = A - P = ₹ (8520 - 6000); S.I = ₹ 2520$$

$$R = \frac{S.I \times 100}{P \times T} = \frac{2520 \times 100}{6000 \times 3} = \frac{252}{18} = 14\% \text{ per annum}$$

4.  $P = ₹ 6250$ ,  $R = 10\%$ ,  $T = 2$  year,  $A = ?$

$$S.I = \frac{P \times R \times T}{100} = \frac{6250 \times 10 \times 2}{100} = ₹ 1250$$

$$\text{Amount} = P + S.I = ₹ 6250 + ₹ 1250 = ₹ 7500$$

## Mental math zone

1. (a)  $\frac{3}{5} = \frac{3}{5} \times 100\% = 60\%$  (b)  $\frac{23}{25} = \frac{23}{25} \times 100\% = 92\%$

(c)  $0.25 = 0.25 \times 100\% = 25\%$  (d)  $15.5 = 15.5 \times 100\% = 1550\%$

2. (a)  $25\%$  of  $180 \text{ ml} = \frac{25}{100} \times 180 = 45 \text{ ml}$

(b)  $50\%$  of  $₹ 284 = \frac{50}{100} \times 284 = ₹ 210$

(c)  $60\%$  of  $250 \text{ kg} = \frac{60}{100} \times 250 = 150 \text{ kg}$

(d)  $10\frac{1}{4}\%$  of  $800 \text{ kg} = \frac{41}{4 \times 100} \times 800 = 82 \text{ kg}$

3. (a)  $38\% = \frac{38}{100} = 3.8$  (b)  $135\% = \frac{135}{100} = 1.35$

4. (a) True (b) False (c) True 5. (a) 100 (b) 17 m (c) 193 (d) ₹ 170  
(e) ₹ 6777

## Multiple Choice Questions (MCQs)

1. ₹ 7000 2.  $A = P + I$  3.  $\frac{29}{100}$  4. 3.6 kg 5. 24%

### Practice Exercise 11.1

1. (a) C.P = ₹ 600, S.P = ₹ 940.

Profit,  $S.P - C.P = ₹ 940 - ₹ 600 = ₹ 340$

(b) C.P = ₹ 1750, S.P = ₹ 1484

loss,  $C.P - S.P = ₹ 1750 - ₹ 1484 = ₹ 266$

(c) C.P = ₹ 645.30, S.P = ₹ 530.60

loss,  $C.P - S.P = ₹ 645.30 - ₹ 530.60 = ₹ 114.70$

(d) C.P = ₹ 68.72, S.P = ₹ 72.65

Profit,  $S.P - C.P = ₹ (72.65 - 68.72) = ₹ 3.93$

2. (a) S.P = ₹ 150, profit = ₹ 25

$C.P = S.P - \text{profit} = ₹ 150 - ₹ 25 = ₹ 125$

(b) S. P = ₹ 56, loss = ₹ 8.09

$C.P = S.P + (\text{loss}) = ₹ (56 + 8.09) = ₹ 64.09$

(c) S.P = ₹ 80.72, profit = ₹ 2.68

$C.P = S.P - \text{Profit} = ₹ (80.72 - 2.68) = ₹ 78.04$

(d) S.P = ₹ 1200, profit = ₹ 95.70

$C.P = S.P - \text{profit} = ₹ (1200 - 95.70) = ₹ 1104.30$

3. (a) C.P = ₹ 1800, profit = ₹ 200, S.P = ?

$S.P = C.P + \text{profit} = ₹ (1800 + 200) = ₹ 2000$

(b) C.P = ₹ 1272.65, profit = ₹ 72.65

$S.P = C.P + \text{profit} = ₹ (1272.65 + 72.65) = ₹ 1345.30$

(c) C.P = ₹ 1088, loss = ₹ 105.79

$S.P = C.P - \text{loss} = ₹ (1088 - 105.79) = ₹ 982.21$

(d) C.P = ₹ 801.26, profit = ₹ 16.25, S.P = ?

$S.P = C.P + \text{profit} = ₹ (801.26 + 16.25) = ₹ 817.51$

4. Fruit seller bought 12 banana (1 dozen) = ₹ 13

1 banana cost = ₹  $13 \div 12 = ₹ 1.083$

fruit seller sold the banana is 1 Re.

So, fruit seller had loss. of 1 Re.

5. Puja bought 20 toys = ₹ 120

1 toys cost = ₹  $120 \div 20 = ₹ 6$

Puja sold 1 toys = ₹ 8

So, the cost of 20 toys = ₹  $8 \times 20 = ₹ 160$

Profit =  $S.P - C.P = ₹ (160 - 120) = ₹ 40$

6. loss = ₹ 1350, S.P = ₹ 10,250, C.P = ?

$C.P = S.P + \text{loss} = ₹ (10,250 + 1350) = ₹ 11600$



### Mental math zone

1. (a) profit = ₹ 250 (b) loss = ₹ 710 (c) loss = ₹ 440  
 (d) profit = ₹ 665 (e) profit = ₹ 230 (f) loss = ₹ 230  
 2. (a) C.P (b) ₹ 670 (c) ₹ 1220

### Multiple Choice Questions (MCQs)

1. C.P. 2. loss 3. Profit ₹ 10 4. ₹ 560

### Practice Exercise 12.1

1.

Bill				
Aggarwal General Store, Delhi				
S. No.	Name of item	Quantity	Price per unit (₹)	Amount (₹)
1.	Rice/basmati	3 kg	@₹70per kg	₹ 210
2.	Pulses/tuhar	5 kg	@₹65per kg	₹ 325
3.	Groundnut refiend oil	4 kg	@₹115per kg	₹ 460
4.	Jam	1 bottle	@₹62per each	₹ 62
5.	Sugar	3 kg	@₹41per kg	₹ 123
			Total : ₹ 1180	

For Aggarwal General Store

2.

Bill				
Food Plaza, Lucknow				
S. No.	Name of item	Quantity	Price per unit (₹)	Amount (₹)
1.	Dosas	3	@ ₹ 60 each	₹ 180
2.	Vadas	4	@ ₹ 15 each	₹ 60
3.	Idlis	8	@ ₹ 17 each	₹ 136
4.	Samosas	4	@ ₹ 8 each	₹ 32
5.	Roasted kaju	150 g	@ ₹ 350 par kg	₹ 52.50
			Total : ₹ 460.50	

For Food Plaza

- (b) Tanu gave ₹ 500 note  
 ₹ (500 – 460.50) = ₹ 39.50  
 She get back ₹ 39.50

3.

Bill				
M/S Park Stationers, <b>Karol Bagh</b>				
S. No.	Name of item	Quantity	Price per unit (₹)	Amount (₹)
1.	Pens	4	@ ₹ 15.50 each	₹ 62
2.	Pencils	3	@ ₹ 5.25 each	₹ 15.75
3.	Ink bottle	1	@ ₹ 28.50 each	₹ 8
4.	Note book	15	@ ₹ 17.25 each	₹ 258.75
5.	Erasers	6	@ ₹ 3.50 each	₹ 18
6.	Colour box	8	@ ₹ 36.50 each	₹ 288
7.	Drawing sheet	4	@ ₹ 2.25 each	₹ 9
			Total = ₹ 659.50	

For Park Stationers

4.

Bill				
Chandigarh Fruit Mart. <b>Chandigarh</b>				
S. No.	Name of item	Quantity	Price per unit (₹)	Amount (₹)
1.	Bananas	4 dozens	@ ₹ 40.50 dozen	₹ 162
2.	Oranges	3 dozens	@ ₹ 34 per dozen	₹ 114
3.	Pineapples	3 pece	@ ₹ 18.50 each	₹ 55.50
4.	Grapes	2 kg	@ ₹ 27.50 per kg	₹ 55
5.	Mangoes	5 kg	@ ₹ 22.50 per kg	₹ 112.50
6.	Apple	$2\frac{1}{2}$ kg	@ ₹ 25.25 per kg	₹ 63.12
			Total = ₹ 562.12	

For Chandigarh Fruit Mart

### Practice Exercise 13.

1.  $\frac{18 + 15 + 17 + 12 + 18}{5}$

$= \frac{80}{5} = 16$

2.  $\frac{8.5 + 7.4 + 3.6 + 9.5}{4}$

$= \frac{29}{4} = 7.25$

3.  $\frac{3+6+9+12+15+18}{6} = \frac{63}{6} = 10\frac{3}{6}$  or 10.5
4.  $\frac{1+2+3+4+5+6+7+8+9+10}{10} = \frac{55}{10} = 5.5$
5.  $\frac{23+29+31+37}{4} = \frac{120}{4} = 30$
6.  $\frac{51+53+55+57+59}{5} = \frac{275}{5} = 55$
7.  $\frac{152.6+156+155.4+158+153+152}{6} \text{ cm} = \frac{927}{6} = 154.5 \text{ cm}$

### Practice Exercise 14.1

1. (a)  $3 : 5 \rightarrow \frac{3}{5}$  (b)  $4 : 11 = \frac{4}{11}$  (c)  $7 : 17 = \frac{7}{17}$   
 (d)  $15 : 19 \rightarrow \frac{15}{19}$  (e)  $20 : 67 = \frac{20}{67}$  (f)  $45 : 49 = \frac{45}{49}$
2. (a)  $\frac{1}{2} = 1 : 2$  (b)  $\frac{3}{25} = 3 : 25$   
 (c)  $\frac{7}{19} = 7 : 19$  (d)  $2\frac{4}{9} = \frac{22}{9} = 22 : 9$
3. (a)  $24 : 36 \rightarrow \frac{24}{36} = \frac{2}{3}$  (b)  $72 : 88 = \frac{72}{88} = \frac{9}{11}$   
 (c)  $65 : 52 = \frac{65}{52} = \frac{5}{4}$  (d)  $68 : 102 = \frac{68}{102} = \frac{4}{6} = \frac{2}{3}$   
 (e)  $375 : 425 = \frac{375}{425} = \frac{15}{17}$  (f)  $800 : 1200 = \frac{800}{1200} = \frac{8}{12} = \frac{2}{3}$
4. (a)  $12 : 13$  and  $24 : 39$

$$12 : 13 = \frac{12}{13} \text{ and } 24 : 39 = \frac{24}{39}$$

Changing like denominator

$$\frac{12}{13} = \frac{12 \times 3}{13 \times 3} = \frac{36}{39}$$

$$\text{So, } \frac{12}{13} > \frac{24}{39}$$

(b)  $4 : 7$  and  $7 : 4$

$$4 : 7 = \frac{4}{7} \text{ and } 7 : 4 = \frac{7}{4}$$

Changing the fraction like denominator

$$\frac{4}{7} = \frac{4 \times 4}{7 \times 4} = \frac{16}{28} \text{ and } \frac{7}{4} = \frac{7 \times 7}{4 \times 7} = \frac{49}{28}$$

$$\text{So, } \frac{4}{7} < \frac{7}{4}$$

(c)  $2 : 5$  and  $1 : 5$

$$2 : 5 = \frac{2}{5} \text{ and } 1 : 5 = \frac{1}{5}$$

$$\text{So, } \frac{2}{5} > \frac{1}{5}$$

### Practice Exercise 14.2

1. (a)  $3 : 9 :: 4 : 12$  (b)  $3 : 5 :: 48 : 80$  (c)  $15 : 24 :: 5 : 8$  (d)  $5 : 2 :: 35 : 14$  (e)  $7 : 10 :: 63 : 90$  (f)  $72 : 9 :: 40 : 5$  (g)  $7 : 5 :: 14 : 10$  (h)  $56 : 49 :: 64 : 56$

### Mental math zone

1. (a)  $39$  and  $13 = \frac{39}{13} = 3 : 1$  (b)  $10$  and  $45 = \frac{10}{45} = \frac{2}{9} = 2 : 9$   
(c)  $17$  and  $12 = \frac{17}{12} = 17 : 12$  (d)  $85$  and  $5 = \frac{85}{5} = \frac{17}{1} = 17 : 1$   
(e)  $625$  and  $25 = \frac{625}{25} = \frac{25}{1} = 25 : 1$  (f)  $48$  and  $54 = \frac{48}{54} = \frac{8}{9} = 8 : 9$   
(g)  $37$  and  $24 = \frac{37}{24} = 37 : 24$   
(h)  $3 : 15$  and  $0.45 = \frac{3.15}{0.45} = \frac{315}{45} = 7 : 1$   
(i)  $45$  and  $90 = \frac{45}{90} = \frac{1}{2} = 1 : 2$
2. (a)  $5 : 4 :: 20 : 16$  (b)  $5 : 3 :: 20 : 12$  (c)  $6 : 1 :: 18 : 3$  (d)  $3 : 4 :: 12 : 16$   
(e)  $2 : 5 :: 14 : 35$  (f)  $5 : 13 :: 15 : 39$  (g)  $8 : 5 :: 24 : 15$  (h)  $9 : 7 :: 27 : 21$

### Multiple Choice Questions (MCQs)

1. The ratio of  $\frac{7}{17}$  is equivalent to  $21 : 51$   
2. if  $3, 4, 5, 6$  are in proportion; then  $3 \times 6 = 4 \times 5$  3. in  $2 : 3 :: 4 : 5$ ,  $2$  and  $5$  are called extreme terms.

### Practice Exercise 15.1

1. (a) A train covers  $800$  km in  $5$  hours.  
Speed =  $\frac{\text{Distance}}{\text{Time}} = \frac{800}{5} = 160$  km/hr  
(b) A girl walks  $7$  km in  $2$  hours  
Speed =  $\frac{\text{Distance}}{\text{Time}} = \frac{7}{2} = 3.5$  km/hr  
(c) A car covers  $208$  km in  $4$  hours  
Speed =  $\frac{\text{Distance}}{\text{Time}} = \frac{208}{4} = 52$  km/hr  
(d) A cyclist covers  $93$  km in  $3$  hours  
Speed =  $\frac{\text{Distance}}{\text{Time}} = \frac{93}{3} = 31$  km/hr
2. (a) A train is running at a speed of  $70$  km/hr for  $4.5$  hour.  
Distance = speed  $\times$  time =  $70$  km/hr  $\times$   $4.5$  hour =  $315$  km  
(b) A man is driving at a speed of  $55$  km/hr for  $6$  hour  
Distance = speed  $\times$  time =  $55 \times 6$  km =  $330$  km
3. Distance =  $343$  km, time =  $7$  hours, speed = ?

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{343}{7} = 49 \text{ km/hr}$$

4. Speed = 1550 km/hr, T = 2 hours, distance = ?

$$\text{Distance} = \text{speed} \times \text{time} = 1550 \times 2 \text{ km} = 3100 \text{ km}$$

5. Distance = 750 km, speed = 25 km/hr, time = ?

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}} = \frac{750}{25} \text{ hr} = 30 \text{ hrs}$$

### Practice Exercise 15.2

1. (a)  $5.05 \text{ km/hour} = 5.05 \times \frac{5}{18} = \frac{5.05 \times 5}{18} = \frac{25.25}{18} = 1.40 \text{ m/sec}$

(b)  $72 \text{ km/hour} = 72 \times \frac{5}{18} = 4 \times 5 = 20 \text{ m/sec}$

(c)  $108 \text{ km/hour} = 108 \times \frac{5}{18} = 6 \times 5 = 30 \text{ m/sec}$

(d)  $118 \text{ km/hour} = 118 \times \frac{5}{18} = \frac{118 \times 5}{18} = \frac{295}{9} = 32.77 \text{ m/sec}$

2. **Note** – To convert m/sec in km/hr we multiply by  $\frac{18}{5}$

(a)  $20 \text{ m/sec} = 20 \times \frac{18}{5} = 4 \times 18 = 72 \text{ km/hr}$

(b)  $40 \text{ m/sec} = 40 \times \frac{18}{5} = 8 \times 18 = 144 \text{ km/hr}$

(c)  $12.5 \text{ m/sec} = 12.5 \times \frac{18}{5} = 2.5 \times 18 = 45 \text{ km/hr}$

(d)  $45 \text{ m/sec} = 45 \times \frac{18}{5} = \frac{810}{5} = 162 \text{ km/hr}$

3. A scooterist can cover 216 km in 4 hours

$$\text{speed} = \frac{\text{Distance}}{\text{Time}} = \frac{216}{4} = 54 \text{ km/hr}$$

$$= 54 \times \frac{5}{18} \text{ m/sec} = 3 \times 5 \text{ m/s} = 15 \text{ m/sec}$$

4. 20 m/sec is greater

5. Distance = 370 km, time = 5 hours

$$\text{speed} = \frac{\text{Distance}}{\text{Time}} = \frac{370}{5} = 74 \text{ km/hr}$$

$$= 74 \times \frac{5}{18} = 20.55 \text{ m/sec}$$

### Mental math zone

1. (a) 3600 (b)  $\frac{1}{1000}$  (c) 90 (d) 180 km

2.	Distance (d)	Time taken (t)	Speed (s)
a.	470 m	10 sec	47 m/sec

b.	480 m	8 sec	60 m/sec
c.	90 km	2 hours	45 km/hr
d.	180 km	18 hours	10 km/hr
e.	540 km	9 hours	60 km/hr
f.	125 m	2.5 sec	50 m/sec

### Multiple Choice Questions (MCQs)

1.  $12\frac{1}{2}$  km/hr =  $\frac{25}{2} \times \frac{18}{5} = 5 \times 9 = 45$  m/sec.

2.  $1 \text{ sec} = \frac{1}{3600}$

3.  $d = 260 \text{ km}$ ,  $t = 4 \text{ hr}$ ,  $S = ?$

speed =  $\frac{\text{Distance}}{\text{Time}} = \frac{260}{4} = 65 \text{ km/hr}$

4.  $\frac{5}{18}$  5.  $\frac{18}{5}$

### Practice Exercise 16.1

**Note** – 1 hour = 60 minutes

1. (a)  $5 \times 60 = 300$  minutes (b) 13 hours =  $13 \times 60 = 780$  minutes  
(c) 10 hours 20 minutes =  $(10 \times 60 + 20)$  minutes =  $600 + 20 = 620$  minutes  
(d) 2 hours 40 minutes =  $(2 \times 60 + 40)$  minutes =  $(120 + 40)$  minutes = 160 minutes

**Note** – 1 day = 24 hours

2. (a) 6 days =  $6 \times 24$  hours = 144 hours. (b) 23 days =  $23 \times 24$  hours = 552 hours. (c) 2 days 14 hours =  $2 \times 24$  hours + 14 hours =  $(48 + 14)$  hours = 62 hours  
(d) 4 days 9 hours =  $(4 \times 24 + 9)$  hours =  $(96 + 9)$  hours = 105 hours

**Note** – 1 min = 60 seconds

3. (a) 2 minutes =  $2 \times 60 = 120$  sec (b) 13 minutes =  $13 \times 60$  sec = 780 sec  
(c) 10 minutes 54 seconds =  $(10 \times 60 + 54)$  sec =  $(600 + 54)$  sec = 654 sec  
(d) 14 minutes 16 seconds =  $(14 \times 60 + 16)$  seconds =  $(840 + 16)$  sec = 856 sec

**Note** – 1 day = 24 hours

4. (a) 72 hours =  $72 \div 24 = 3$  days (b) 96 hours =  $96 \div 24 = 4$  days  
(c) 120 hours =  $120 \div 24 = 5$  days (d) 144 hours =  $144 \div 24 = 6$  days

**Note** – 1 week = 7 days

5. (a) 35 days =  $35 \div 7 = 5$  weeks (b) 49 days =  $49 \div 7 = 7$  weeks  
(c) 104 days =  $104 \div 7 = 14$  weeks and 6 days (d) 147 days =  $147 \div 7 = 21$  weeks.

## Practice Exercise 16.2

1. (a) 

5 weeks	6 days
+ 2 weeks	3 days
8 weeks 2 days	

 (b) 

12 years	6 months
+ 2 years	10 months
15 years 6 months	
- (c) 

8 days	14 hours
+ 3 days	13 hours
12 days 3 hours	

 (d) 

4 hours	36 minutes
+ 2 hours	40 minutes
7 hours 16 minutes	
- (e) 

15 minutes	48 seconds
+ 12 minutes	22 seconds
28 minutes 10 seconds	

 2. (a) 

6 weeks	3 days
- 3 weeks	5 days
2 weeks 5 days	
- (b) 

17 hours	24 minutes
- 14 hours	45 minutes
2 hours 39 minutes	

 (c) 

13 years	3 months
- 8 years	7 months
4 years 8 months	
- (d) 

15 days	32 hours
- 10 days	42 hours
4 days 14 hours	

 (e) 

17 minutes	45 seconds
- 15 minutes	50 seconds
1 minutes 55 seconds	
3. (a) 

32 weeks	8 days
+ 21 weeks	3 days
54 weeks 4 days	

 (b) 

13 days	15 hours
+ 14 days	13 hours
28 days 4 hours	
- (c) 

21 hours	56 minutes
+ 10 hours	32 minutes
32 hours 28 minutes	

 (d) 

13 weeks	7 days
- 11 weeks	3 days
2 weeks 4 days	
- (e) 

27 days	46 hours
- 14 days	13 hours
13 days 33 hours	

 (f) 

29 hours	46 minutes
- 13 hours	21 minutes
16 hours 25 minutes	

4. The annual function of a school started = 7 : 15 pm  
 The annual function of a school ended = 10 : 50 pm  
 Total duration of the function = 10 : 50 - 7 : 15  
 = 3 : 35 hours

5. David joined dance class on 15 August

Duration of dance class in 25 days

So, the last class is 15 August + 25 days = 8th September

6. Anu started cooking at 1 : 15 p.m and finished 1 hour 30 minutes

So, Any finished her cooking class = 1 : 15 + 1 hour 30 minutes  
= 2 : 45 P.M.

7. Karan's birthday party started at 12 o'clock noon and finish after 5 hour 25 minutes.

So, the party get over = 12 o' clock + 5 hour 25 minutes  
= 5 : 25 p.m

### Practice Exercise 16.3

**Note** – To convert celsius into Fahrenhite  $^{\circ}\text{F} = \frac{9}{5}^{\circ}\text{C} + 32$

1. (a)  $20^{\circ}\text{C} = \frac{9}{5}^{\circ}\text{C} + 32 = \frac{9}{5} \times 20 + 32 = 9 \times 4 + 32$   
 $= 36 + 32 = 68^{\circ}\text{F}$

(b)  $35^{\circ}\text{C} = \frac{9}{5}^{\circ}\text{C} + 32 \rightarrow = \frac{9}{5} \times 35 + 32 = 9 \times 7 + 32 = 63 + 32$   
 $= 95^{\circ}\text{F}$

(c)  $60^{\circ}\text{F} = \frac{9}{5}^{\circ}\text{C} + 32 = \frac{9}{5} \times 60 + 32 = 9 \times 12 + 32 = 108 + 32 =$   
 $140^{\circ}\text{F}$

(d)  $55^{\circ}\text{C} = \frac{9}{5}^{\circ}\text{C} + 32 = \frac{9}{5} \times 55 + 32 = 9 \times 10 + 32$   
 $= 99 + 32 = 131^{\circ}\text{F}$

(e)  $75^{\circ}\text{C} = \frac{9}{5}^{\circ}\text{C} + 32 = \frac{9}{5} \times 75 + 32 = 9 \times 15 + 32$   
 $= 135 + 32 = 167^{\circ}\text{F}$

(f)  $90^{\circ}\text{C} = \frac{9}{5}^{\circ}\text{C} + 32 = \frac{9}{5} \times 90 + 32 = 9 \times 18 + 32$   
 $= 162 + 32 = 194^{\circ}\text{F}$

2. (a)  $50^{\circ}\text{F} = (\text{F}^{\circ} - 32) \times \frac{5}{9} = (59 - 32) \times \frac{5}{9} = \frac{27 \times 5}{9}$   
 $= 3 \times 5 = 15^{\circ}\text{C}$

(b)  $68^{\circ}\text{F} = (\text{F}^{\circ} - 32) \times \frac{5}{9} = (68 - 32) \times \frac{5}{9} = \frac{36 \times 5}{9} = 20^{\circ}\text{C}$

(c)  $95^{\circ}\text{F} = (\text{F}^{\circ} - 32) \times \frac{5}{9} = (95 - 32) \times \frac{5}{9} = \frac{63 \times 5}{9} = 35^{\circ}\text{C}$

(d)  $77^{\circ}\text{F} = (\text{F}^{\circ} - 32) \times \frac{5}{9} = (77 - 32) \times \frac{5}{9} = \frac{45 \times 5}{9} = 25^{\circ}\text{C}$

(e)  $131^{\circ}\text{F} = (\text{F}^{\circ} - 32) \times \frac{5}{9} = (131 - 32) \times \frac{5}{9} = \frac{99 \times 5}{9} = 55^{\circ}\text{C}$

(f)  $122^{\circ}\text{F} = (\text{F}^{\circ} - 32) \times \frac{5}{9} = (122 - 32) \times \frac{5}{9} = \frac{90 \times 5}{9} = 50^{\circ}\text{C}$



## Mental math zone

1. (a)  $5^{\circ}\text{C}$  (b)  $5^{\circ}\text{C}$  (c)  $15^{\circ}\text{C}$  (d)  $45^{\circ}\text{C}$  (e)  $42^{\circ}\text{C}$  (f)  $45^{\circ}\text{C}$  (g)  $35^{\circ}\text{C}$  (h)  $30^{\circ}\text{C}$  2. (a) 32 (b) 100 (c) 180 (d) clinical (e) 98.6

## Practice Exercise 17.1

1. (a) 3 m 24 cm (b) 2 m (c) 1400 cm (d) 1 kg 649 g (e) 3 kg 906 g (f) 39007 g (g) 5 l 13 ml (h) 5 l 142 ml

2. (a) 

3 km 56 m
+ 2 km
5 km 56 m

 (b) 

41 kg 352 g
+ 25 kg 27 g
66 kg 379 g

 (c) 

59 l 125 ml
+ 38 l 28 ml
97 l 153 ml
- (d) 

74 m 45 cm
+ 89 m 96 cm
164 m 41 cm

 3. (a) 

67 km 345 m
- 38 km 154 m
29 km 191 m

 (b) 

65 kg 302 g
- 34 kg 999 g
30 kg 303 g
- (c) 

82 l 600 ml
- 78 l 272 ml
4 l 328 ml

 (d) 

79 m 56 cm
- 61 m 81 cm
17 m 75 cm

## Practice Exercise 17.2

1. (a)  $90 \times 1000 \text{ ml} + 99 \text{ ml} = (90000 + 99) \text{ ml} = 90099 \text{ ml}$  (b)  $(35 \times 100 + 15) \text{ cl} = (3500 + 15) \text{ cl} = 3515 \text{ cl}$  (c)  $(35.5 \times 1000) \text{ ml} = 35500 \text{ ml}$  (d)  $(7 \times 1000) \text{ l} = 7000 \text{ l}$  (e)  $(21 \times 1000 + 900) \text{ mg} = (21000 + 900) \text{ mg} = 21900 \text{ mg}$  (f)  $(44 \times 1000 + 800) \text{ g} = (44000 + 800) \text{ g} = 44800 \text{ g}$  (g)  $(6 \times 100 + 40) \text{ g} = 640 \text{ g}$  (h)  $(6.2 \times 1000) \text{ mg} = 6200 \text{ mg}$  (i)  $(3 \times 1000 + 45) \text{ cm} = (3000 + 45) \text{ cm} = 3045 \text{ cm}$
2. (a) 0.135 kl (b) 8.38 cl (c) 1.950 kl (d) 2.50 dal (e) 1.850 kg (f) 2.505 g (g) 25.950 g (h) 25.75 dg (i) 0.378 km

## Practice Exercise 17.3

1. (a) 

4.67 kg
+ 3.650 kg
8.320 kg

 (b) 

4 kg 770 g
+ 21 kg 031 g
25 kg 801 g

 (c) 

29 kl 35 l
35 kl 00 l
+ 5 kl 12 l
69 kl 47 l
- (d) 

8 cm 6 mm
0 cm 3 mm
+ 12 cm 3 mm
21 cm 2 mm

 (e) 

25.37 km
+ 0.025 km
25.395 km

 (f) 

21 l 65 ml
00 l 31 ml
+ 10 l 34 ml
31 l 130 ml

2. (a) 
$$\begin{array}{r} 6.680 \text{ kg} \\ - 3.650 \text{ kg} \\ \hline 3.030 \text{ kg} \end{array}$$
 (b) 
$$\begin{array}{r} 35 \text{ km } 275 \text{ m} \\ - 11 \text{ km } 525 \text{ m} \\ \hline 23 \text{ km } 750 \text{ m} \end{array}$$
 (c) 
$$\begin{array}{r} 2 \text{ m } 05 \text{ cm} \\ - 0 \text{ m } 15 \text{ cm} \\ \hline 1 \text{ m } 90 \text{ cm} \end{array}$$

(d) 
$$\begin{array}{r} 20 \text{ l } 000 \text{ ml} \\ - 10 \text{ l } 560 \text{ ml} \\ \hline 19 \text{ l } 440 \text{ ml} \end{array}$$
 (e) 
$$\begin{array}{r} 2 \text{ kg } 170 \text{ g} \\ - 270 \text{ g} \\ \hline 1 \text{ kg } 900 \text{ g} \end{array}$$
 (f) 
$$\begin{array}{r} 20 \text{ g } 170 \text{ mg} \\ - 8 \text{ g } 890 \text{ mg} \\ \hline 11 \text{ g } 280 \text{ mg} \end{array}$$

3. Mr Gupta bought blue cloth = 4 m 25 cm  
 Mr Gupta bought yellow cloth = 2 m 75 cm  
 Mr Gupta bought red cloth = + 6 m 50 cm  
 Mr Gupta bought total cloth = 
$$\begin{array}{r} 4 \text{ m } 25 \text{ cm} \\ + 2 \text{ m } 75 \text{ cm} \\ + 6 \text{ m } 50 \text{ cm} \\ \hline 13 \text{ m } 50 \text{ cm} \end{array}$$

So, Mr Gupta bought 13 m 50 cm cloth.

4. Savita bought mango juice = 4.5 l  
 Her friend consumed juice = 2 l 925 ml  
 Juice left with Savita = 
$$4.5 \text{ l} - 2 \text{ l } 925 \text{ ml}$$
  
 = 1 l 575 ml or 1575 ml

5. Julie bought orange juice = 3.5 l  
 Julie consumed juice = 1 l 600 ml  
 Juice left with Julie = 
$$3.5 \text{ l} - 1 \text{ l } 600 \text{ ml} = 1 \text{ l } 900 \text{ ml}$$

6. Sohan travelled by train = 15 km 200 m  
 Sohan travelled by bus = 13 km 600 m  
 Sohan travelled on foot = + 5 km 425 m  
 Sohan travelled total distance = 
$$\begin{array}{r} 15 \text{ km } 200 \text{ m} \\ + 13 \text{ km } 600 \text{ m} \\ + 5 \text{ km } 425 \text{ m} \\ \hline 34 \text{ km } 225 \text{ m} \end{array}$$

So, Sohan travelled total distance = 34.225 km.

### Practice Exercise 17.4

1. (a) 
$$\begin{array}{r} 6.850 \\ \times 1.25 \\ \hline 34250 \\ 137000 \\ + 685000 \\ \hline 8.56250 \end{array}$$
 (b) 
$$\begin{array}{r} 5.56 \\ \times 3.20 \\ \hline 000 \\ 11120 \\ + 166800 \\ \hline 17.7920 \end{array}$$
 (c) 
$$\begin{array}{r} 6.70 \\ \times 3.60 \\ \hline 000 \\ 40200 \\ + 201000 \\ \hline 24.1200 \end{array}$$

(d) 
$$\begin{array}{r} 5.071 \\ \times 3.1 \\ \hline 5071 \\ + 152130 \\ \hline 15.7201 \end{array}$$
 (e) 
$$\begin{array}{r} 6.87 \\ \times 1.2 \\ \hline 1374 \\ + 6870 \\ \hline 8.244 \end{array}$$
 (f) 
$$\begin{array}{r} 4.705 \\ \times 4.2 \\ \hline 9410 \\ + 188200 \\ \hline 19.7610 \end{array}$$

2. Arun ran in a day

$$= 13.41 \text{ km}$$

Arun ran in a 7 day

$$= 13.41 \times 7 \text{ km}$$

$$= 93.87 \text{ km}$$

So, Arun ran in 7 days 93.87 km

3. The weight of a chocolate box

$$= 2.792 \text{ kg.}$$

The weight of 13 such boxes

$$= 2.792 \times 13$$

$$= 36.296 \text{ kg}$$

So, the weight of 13 such boxes is 36.296 kg

4. One bucket contains water = 3.316 l

$$26 \text{ bucket contains water} = 3.316 \text{ l} \times 25 = 82.9 \text{ l}$$

So, 26 bucket contains 82.9 l water.

### Practice Exercise 17.5

1. (a)  $\frac{3.625}{1.25} = \frac{3625}{1250}$   

$$= \frac{29}{10}$$

$$\begin{array}{r} 10 \overline{) 29} \quad (2.9 \\ \underline{-20} \phantom{0} \\ 90 \\ \underline{-90} \\ \hline \times \end{array}$$

$$= 2.9 \text{ km}$$

(d)  $\frac{6.960}{1.6}$   

$$= \frac{6960}{1600}$$

$$\begin{array}{r} 160 \overline{) 6960} \quad (4.35 \\ \underline{-640} \phantom{0} \\ 560 \\ \underline{-480} \phantom{0} \\ 800 \\ \underline{-800} \\ \hline \times \end{array}$$

$$= 4.35 \text{ g}$$

(b)  $\frac{89.680}{0.12} = \frac{89680}{12}$   

$$= \frac{8968}{12}$$

$$\begin{array}{r} 12 \overline{) 89680} \quad (747.33 \\ \underline{-84} \phantom{00} \downarrow \\ 56 \\ \underline{-48} \phantom{00} \downarrow \\ 88 \\ \underline{-84} \phantom{00} \\ 40 \\ \underline{-36} \phantom{00} \\ 4 \end{array}$$

$$= 747.33 \text{ l}$$

(e)  $\frac{109.20}{0.13}$   

$$= \frac{10920}{13}$$

$$\begin{array}{r} 13 \overline{) 10920} \quad (840 \\ \underline{-104} \phantom{00} \downarrow \\ 52 \\ \underline{-52} \phantom{00} \downarrow \\ 0 \\ \underline{-0} \\ \hline \times \end{array}$$

$$= 840 \text{ m}$$

(c)  $\frac{10659}{1.7}$   

$$= \frac{106590}{17}$$

$$\begin{array}{r} 17 \overline{) 106590} \quad (6270 \\ \underline{-102} \phantom{00} \downarrow \\ 45 \\ \underline{-34} \phantom{00} \downarrow \\ 119 \\ \underline{-119} \phantom{00} \downarrow \\ 0 \\ \underline{-0} \\ \hline \times \end{array}$$

$$= 6270 \text{ cl}$$

(f)  $\frac{12.288}{0.24} = \frac{12288}{240}$

$$\begin{array}{r} 240 \overline{) 12288} \quad (51.2 \\ \underline{-1200} \phantom{00} \downarrow \\ 288 \\ \underline{-240} \phantom{00} \\ 480 \\ \underline{-480} \\ \hline \times \end{array}$$

$$= 51.2 \text{ m}$$

2. Soniya's mother made soup for the party = 8 l 785 ml

soup is distributed equally among 7 people = 8 l 785 ml  $\div$  7

$$\begin{array}{r}
 7 \overline{) 8.785} (1.255 \\
 \underline{- 7} \phantom{.} \phantom{8} \phantom{5} \phantom{0} \\
 1 \phantom{.} \phantom{8} \phantom{5} \phantom{0} \\
 \underline{- 1} \phantom{.} \phantom{8} \phantom{5} \phantom{0} \\
 3 \phantom{.} \phantom{8} \phantom{5} \phantom{0} \\
 \underline{- 3} \phantom{.} \phantom{8} \phantom{5} \phantom{0} \\
 3 \phantom{.} \phantom{8} \phantom{5} \phantom{0} \\
 \underline{- 3} \phantom{.} \phantom{8} \phantom{5} \phantom{0} \\
 3 \phantom{.} \phantom{8} \phantom{5} \phantom{0} \\
 \underline{- 3} \phantom{.} \phantom{8} \phantom{5} \phantom{0} \\
 5 \phantom{.} \phantom{8} \phantom{5} \phantom{0} \\
 \underline{- 5} \phantom{.} \phantom{8} \phantom{5} \phantom{0} \\
 0 \phantom{.} \phantom{8} \phantom{5} \phantom{0}
 \end{array}$$

Soup was given each person is  $1 \frac{1}{255} \text{ ml}$ .

**3.** The total length of the pipe = 9.39 m

if the pipe is cut into 3 pieces =  $9.39 \div 3$

$$\begin{array}{r}
 3 \overline{) 9.39} (3.13 \\
 \underline{- 9} \phantom{.} \phantom{9} \phantom{0} \\
 3 \phantom{.} \phantom{9} \phantom{0} \\
 \underline{- 3} \phantom{.} \phantom{9} \phantom{0} \\
 9 \phantom{.} \phantom{9} \phantom{0} \\
 \underline{- 9} \phantom{.} \phantom{9} \phantom{0} \\
 0 \phantom{.} \phantom{9} \phantom{0}
 \end{array}$$

So, each pipe length is 3 m 13 cm

### Mental math zone

1. (a) kg (b) g (c) mm (d) ml

### Multiple Choice Questions (MCQs)

1. 5 km =  $5 \times 1000 \text{ m} = 5000 \text{ m}$  2.  $3000 \text{ ml} = 3000 \div 1000 = 3 \text{ l}$   
 3.  $1 \text{ dal} = 1000 \text{ cl}$  4.  $14 \text{ g} = 14 \div 1000 \text{ kg} = 0.014 \text{ kg}$

### Practice Exercise 18.1

1. (a) ray (b) no (c) Intersecting (d) line segment (e) parallel  
 2. (a) True (b) True (c) False (d) False 3. (a) QR, RP, QP and TS.  
 (b) AB, BC, CD, DA, AC, and DB. (c) AB, BC, CD, DE, AE, EC, and AD.  
 4. (a) point (b) line (c) line segment (d) ray

### Practice Exercise 18.2

1. (a) vertex = Q, arms, QP, QR. (b) vertex E, arms ED, EF (c) vertex = y,  
 arms = yz, yx, 2. (a) acute (b) obtuse (c) reflex (d) acute 3. Do yourself  
 4. (a) acute (b) acute (c) obtuse (d) reflex (e) zero (f) obtuse (g) reflex  
 (h) reflex (i) reflex (j) complete

### Mental math zone

1. (a) True (b) False (c) False (d) False (e) True (f) False (g) False  
 (h) False (i) True 2. (a) AB (b) reflex (c) right (d) protractor

## Multiple Choice Questions (MCQs)

1. always 2. acute 3. right 4. no 5.  $\vec{xy}$

### Practice Exercise 19.1

1. (a) longest (b) half (c) diameter (d) half (e) 2 2. Do yourself  
3. (a)  $2 \text{ cm} = d = 2 \times r = 2 \times 2 = 4 \text{ cm}$  (b)  $2.5 \text{ cm} = 2 \times 2.5 \text{ cm} = 5 \text{ cm}$  (c)  $3.54 \text{ cm} = 2 \times 3.54 = 7.08 \text{ cm}$  (d)  $5 \text{ cm} = 2 \times 5 = 10 \text{ cm}$   
4. (a)  $8 \text{ cm}$ ;  $D = 2 \times r$ ,  $r = \frac{D}{2} = \frac{8}{2} = 4 \text{ cm}$  (b)  $7.6 \text{ cm} = \frac{7.6}{2} = 3.8 \text{ cm}$   
(c)  $4.8 \text{ cm} = \frac{4.8}{2} = 2.4 \text{ cm}$  (d)  $6.42 \text{ cm} = \frac{6.42}{2} = 3.21 \text{ cm}$  5. Do yourself

### Practice Exercise 19.2

1. in  $\triangle ABC$ ;  $\angle B = 75^\circ$ ,  $\angle c = 30^\circ$ , find  $\angle A$   
 $\angle A + \angle B + \angle C = 180^\circ$   
 $\angle A + 75^\circ + 30^\circ = 180^\circ$   
 $\angle A = 180^\circ - 105^\circ = 75^\circ$   
So,  $\angle A = 75^\circ$   
2. In  $\triangle ABC$ ;  $\angle A = 60^\circ$ ,  $\angle C = 70^\circ$  find  $\angle B$ .  
 $\angle A + \angle B + \angle C = 180^\circ$   
 $60^\circ + \angle B + 70^\circ = 180^\circ$   
 $\angle B + 130^\circ = 180^\circ$   
 $\angle B = 180^\circ - 130^\circ = 50^\circ$   
3. In right angle triangle sum of two angle =  $90^\circ$   
 $45^\circ + \text{Other angle} = 90^\circ$   
 $\text{Other angle} = 90^\circ - 45^\circ$   
 $\text{Other angle} = 45^\circ$   
4. Two equal angles are =  $65^\circ$  and  $65^\circ$   
We know,  
Sum of three angles =  $180^\circ$   
So,  $65^\circ + 65^\circ + \text{other angle} = 180^\circ$   
 $130^\circ + \text{other angle} = 180^\circ - 130^\circ = 50^\circ$   
Hence other angles are =  $65^\circ$  and  $50^\circ$   
5.  $90^\circ$ ,  $30^\circ$ ,  $60^\circ$  6. (a) no (b) yes (c) no (d) no (e) no (f) no 7. (a) yes (b) no (c) yes (d) yes

### Practice Exercise 19.3

1. (a)  $90^\circ$  (b)  $90^\circ$  (c)  $360^\circ$  (d)  $360^\circ$  (e)  $360^\circ$

### Mental math zone

1. (a) False (b) True (c) True 2. (a) parallel, equal (b) equal (c) centre

## Multiple Choice Questions (MCQs)

1.  $180^\circ$  2. centre 3. hypotenuse

### Practice Exercise 20.1

1. (a)  $l = 6$  cm,  $b = 3$  cm

$$P = 2(l + b) = 2(6 + 3)\text{cm} = 2 \times 9\text{ cm} = 18\text{ cm}$$

- (b)  $l = 13$  m,  $b = 12$  m.

$$P = 2(l + b) = 2(13 + 12)\text{ m} = 2 \times 25\text{ m} = 50\text{ m}$$

- (c)  $l = 12$  cm,  $b = 4$  cm

$$2(l + b) = 2(12 + 4)\text{ cm} = 2 \times 16\text{ cm} = 32\text{ cm}$$

- (d)  $l = 17$  cm,  $b = 11$  cm

$$P = 2(l + b) = 2(17 + 11)\text{ cm} = 2 \times 28\text{ cm} = 56\text{ cm}$$

2. (a) 4 cm;  $p = 4 \times \text{side} = 4 \times 4\text{ cm} = 16\text{ cm}$

- (b) 12 m;  $p = 4 \times \text{side} = 4 \times 12\text{ m} = 48\text{ m}$

- (c) 19 cm;  $p = 4 \times \text{side} = 4 \times 19\text{ cm} = 76\text{ cm}$

- (d) 28 cm;  $p = 4 \times \text{side} = 4 \times 28\text{ cm} = 112\text{ cm}$

- (e) 37 cm;  $p = 4 \times \text{side} = 4 \times 37\text{ cm} = 148\text{ cm}$

- (f) 56 m;  $p = 4 \times \text{side} = 4 \times 56\text{ m} = 224\text{ m}$

3. (a) 4 cm, 6 cm, 12 cm

Perimeter of  $\Delta$  = sum of length of its side

$$= 4\text{ cm} + 6\text{ cm} + 12\text{ cm} = 22\text{ cm}$$

- (b) 8 m, 12 m, 4m

$$\text{Perimeter of } \Delta = 8\text{ m} + 12\text{ m} + 4\text{ m} = 24\text{ m}$$

- (c) 10 m, 15 m, 25 m

$$\text{Perimeter of } \Delta = 10\text{ m} + 15\text{ m} + 25\text{ m} = 50$$

- (d) 13 cm, 3 cm, 5 cm

$$\text{perimeter of } \Delta = 13\text{ m} + 3\text{ m} + 5\text{ m} = 21\text{ m}$$

4. The length of a rectangular park = 20 m

The breadth of a rectangular park = 13 m

$$\text{perimeter of rectangle} = 2(l + b) = 2(20 + 13)\text{ m}$$

$$= 2 \times 33 = 66$$

Raman Jogs and completes 4 rounds of the park

$$= 4 \times 66\text{ m} = 264\text{ m}$$

5. The perimeter of a triangle = sum of all side

$$= (25 + 25 + 36)\text{cm} = 86\text{ cm}$$

### Practice Exercise 20.2

1. (a)  $l = 26$  cm,  $b = 14$  cm

$$\text{Area} = l \times b = 26\text{ cm} \times 14\text{ cm} = 286\text{ cm}^2$$

(b)  $l = 23 \text{ m}$ ,  $b = 5 \text{ m}$

Area =  $l \times b = 23 \text{ cm} \times 5 \text{ m} = 115 \text{ m}^2$

(c)  $l = 14 \text{ cm}$ ,  $b = 5 \text{ cm}$

Area of rectangle =  $l \times b = 14 \times 5 \text{ cm}^2 = 70 \text{ cm}^2$

(d)  $l = 20 \text{ m}$ ,  $b = 10 \text{ m}$

Area =  $l \times b = 20 \text{ m} \times 10 \text{ m} = 200 \text{ m}^2$

(e)  $l = 11 \text{ cm}$ ,  $b = 3 \text{ cm}$

Area =  $l \times b = 11 \text{ cm} \times 3 \text{ cm} = 33 \text{ cm}^2$

(f)  $l = 9 \text{ cm}$ ,  $b = 4 \text{ cm}$

Area =  $l \times b = 9 \text{ cm} \times 4 \text{ cm} = 36 \text{ cm}^2$

2. (a)  $\Delta$  Ist area of rectangle = ABCD =  $8 \times 3 \text{ m}^2 = 24 \text{ m}^2$

IInd area of rectangle = PQBO =  $8 \times 3 \text{ m}^2 = 24 \text{ m}^2$

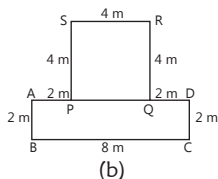
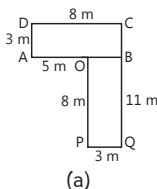
Area of total figure =  $24 \text{ m}^2 + 24 \text{ m}^2 = 48 \text{ m}^2$

(b) Area of square PQRS =  $4 \text{ m} \times 4 \text{ m} = 16 \text{ m}^2$

Area of rectangle ABCD

=  $8 \text{ m} \times 2 \text{ m} = 16 \text{ m}^2$

Total area of figure =  $16 \text{ m}^2 + 16 \text{ m}^2 = 32 \text{ m}^2$



3. Area of room =  $l \times b = 9 \text{ m} \times 7 \text{ m} = 63 \text{ m}^2$

4. Area of a square =  $10 \text{ cm} \times 10 \text{ cm} = 100 \text{ cm}^2$

Area of a square = Area of a rectangle

$100 \text{ cm}^2 = (l \times b)$

=  $100 \text{ cm}^2 = (20 \times b)$

=  $100 \text{ cm}^2 = 20 \text{ cm} \times b$

$b = \frac{100}{20} = \frac{5}{2} = b = 5 \text{ cm}$

So, breadth is 5 cm.

5. Area of a square = side  $\times$  side =  $12 \text{ m} \times 12 \text{ m} = 144 \text{ m}^2$

### Practice Exercise 20.3

1. (a)  $V = 5 \text{ cm} \times 5 \text{ cm} \times 5 \text{ cm} = 125 \text{ cm}^3$

(b)  $V = 7 \text{ cm} \times 7 \text{ cm} \times 7 \text{ cm} = 343 \text{ cm}^3$

(c)  $V = 6.5 \text{ cm} \times 6.5 \text{ cm} \times 6.5 \text{ cm} = 274.625 \text{ cm}^3$

(d)  $V = 8.4 \text{ cm} \times 8.4 \text{ cm} \times 8.4 \text{ cm} = 592.704 \text{ cm}^3$

2. (a)  $l = 3 \text{ cm}$ ,  $b = 4 \text{ cm}$ ,  $h = 2 \text{ cm}$

$V = l \times b \times h = 3 \text{ cm} \times 4 \text{ cm} \times 2 \text{ cm} = 24 \text{ cm}^3$

(b)  $l = 12 \text{ cm}$ ,  $h = 10 \text{ cm}$ ,  $h = 8 \text{ cm}$

$V = l \times b \times h = 12 \text{ cm} \times 10 \text{ cm} \times 8 \text{ cm} = 960 \text{ cm}^3$

(c)  $l = 8 \text{ m}$ ,  $b = 6 \text{ m}$ ,  $h = 3 \text{ cm}$

$V = l \times b \times h = 8 \text{ cm} \times 6 \text{ cm} \times 3 \text{ cm} = 960 \text{ cm}^3$

(d)  $l = 18 \text{ cm}$ ,  $b = 15 \text{ cm}$ ,  $h = 10 \text{ cm}$

$$V = l \times b \times h = 18 \text{ m} \times 15 \text{ m} \times 10 \text{ m} = 2700 \text{ cm}^3$$

**3.** The length of a chocolate box =  $17 \text{ cm}$

The width of a chocolate box =  $14 \text{ m}$

The height of a chocolate box =  $8 \text{ cm}$

Volume of a chocolate box =  $l \times b \times h$

$$= (17 \times 14 \times 8) \text{ cm}^3 = 1904 \text{ cm}^3$$

**4.** Length of a water tank =  $30 \text{ m}$

Width of a water tank =  $25 \text{ m}$

Height of a water tank =  $15 \text{ m}$

Volume of a water tank =  $l \times b \times h = 30 \text{ m} \times 25 \text{ m} \times 15 \text{ m}$

$$= 11250 \text{ cm}^3$$

**5.** Length of an eraser =  $5 \text{ cm}$

Width of an eraser =  $4 \text{ cm}$

Height of an eraser =  $3 \text{ cm}$

Volume of an eraser =  $l \times b \times h = 5 \text{ cm} \times 4 \text{ cm} \times 3 \text{ cm} = 60 \text{ cm}^3$

Volume of such 5 erasers =  $5 \times 60 = 300 \text{ cm}^3$

**6.** Volume of a cubical tank =  $l \times l \times l$

$$= 25 \text{ cm} \times 25 \text{ cm} \times 25 \text{ cm} = 15625 \text{ cm}^3$$

**7.** The volume of a box =  $l \times b \times h$

$$= 15 \text{ cm} \times 12 \text{ cm} \times 10 \text{ cm} = 1800 \text{ cm}^3$$

The volume of another box =  $\frac{l}{2} \times \frac{b}{2} \times \frac{h}{2}$

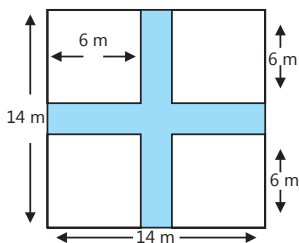
$$= \frac{15}{2} \times \frac{12}{2} \times \frac{10}{2} = (7.5 \times 6 \times 5) \text{ cm}^3 = 225 \text{ cm}^3$$

Difference both volume of the box =  $1800 \text{ cm}^3 - 225 \text{ cm}^3 = 1575 \text{ cm}^3$

### Mental math zone

**1.** (a) 1000 (b) 8 cu cm (c)  $400 \text{ m}^2$  (d) sq cm **2.** (a) True (b) False (c) False (d) False

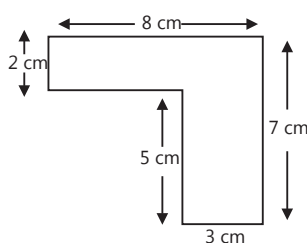
**3. (a)**



(a) perimeter =  $56 \text{ m}$

Area =  $52 \text{ sq m}$

**(b)**



(b) perimeter =  $30 \text{ cm}$

Area =  $31 \text{ sq cm}$



## Multiple Choice Questions (MCQs)

1. Perimeter of square =  $4 \times \text{side}$

$$32 = 4 \times \text{side, side} = 8 \text{ cm}$$

2. Volume of a cube =  $l \times l \times l = 5 \text{ cm} \times 5 \text{ cm} \times 5 \text{ cm} = 125 \text{ cu cm}$

3. Area of a rectangle =  $(l \times b)$

$$540 \text{ sq cm} = (36 \times b), \frac{540}{36} = b, b = 15 \text{ cm.}$$

4. Area of square park = 324, length = ?

$$\text{Area of square} = l \times l$$

$$324 = l^2$$

$$l = \sqrt{324} = 18$$

So,  $l = 18 \text{ m}$

### Practice Exercise 21.1

1. (a) 9 (b) 25 (c) 3 (d) 70 2. (a)  $7^2 + 8$  (b)  $6 \times 7$  (c) 10 (d) 20

3. (a)  $113 \div 3 = 37$

(b)  $1 \times 9 + 2 = 11$

$$222 \div 6 = 37$$

$$12 \times 9 + 3 = 111$$

$$333 \div 9 = 37$$

$$123 \times 9 + 4 = 1111$$

$$444 \div 10 = 37$$

$$1234 \times 9 + 5 = 11111$$

$$555 \div 15 = 37$$

$$12345 \times 9 + 6 = 111111$$

$$666 \div 18 = 37$$

$$123456 \times 9 + 7 = 1111111$$

(c)  $1 \times 8 + 1 = 9$

(d)  $9 + 1 = 10$

$$12 \times 8 + 2 = 98$$

$$90 + 10 = 100$$

$$123 \times 8 + 3 = 987$$

$$900 + 100 = 1000$$

$$1234 \times 8 + 4 = 9876$$

$$9000 + 1000 = 10,000$$

$$1234 \times 8 + 5 = 98765$$

$$90000 + 10000 = 100000$$

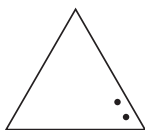
$$12345 \times 8 + 6 = 98764$$

$$90000 + 100000 = 1000000$$

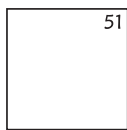
4. (a) 729 (b) 12 (c) 64 (d) 47 5. (a) 15, 18, 21 (b) 45, 54, 63 (c) 30, 35, 40 (d) 36, 42, 48 (e) 90, 110, 130 (f) 56, 70, 84

### Practice Exercise 21.2

1. (a)



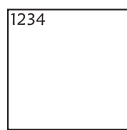
(b)



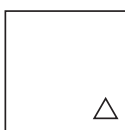
(c)



2. (a)



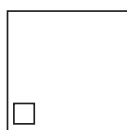
(b)



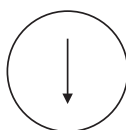
3. (a)



(b)



(c)



## Mental math zone






1. (a) 128, 256, 512 (b) 3125, 15625, 78125 (c) 11, 13, 15 (d) 35, 42, 49 (e) 75, 70, 65 (f) 41, 24, 7 (g) 65, 78, 91 (h) 37, 50, 65 (i) 30, 36, 42 (j) 19, 15, 12 (k) 512, 2048, 8192 (l) 33, 38, 43 (m) 36, 6, 25 (n) 144, 169, 196 (o) 40, 48, 56 (p) 120, 140, 160

## Multiple Choice Questions (MCQs)






1. (d) 216 2. 13 3. Which is not a triangular number? 12

## Practice Exercise 22.1

1. (a) 17 (b) No any day (c) Wednesday (d) 86

2.	Number of trees	Name of tree	Pictograph
	60	Mango	
	50	Neem	
	15	Banyan	
	25	Gulmohar	
	35	Palm	

Symbol =  = 5 trees

3.	House	Number of students	Pictograph
	Nehru	80	
	Gandhi	40	
	Patel	60	
	Nayadu	70	
	Shastri	90	

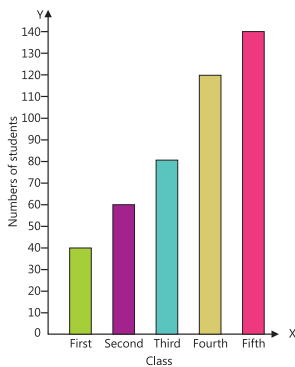
 = 10 students

- (a) Shastri house is the maximum students. (b) 40 students are there in Gandhi house. (c) Total number of students in class V are  $80 + 40 + 60 + 70 + 90 = 340$

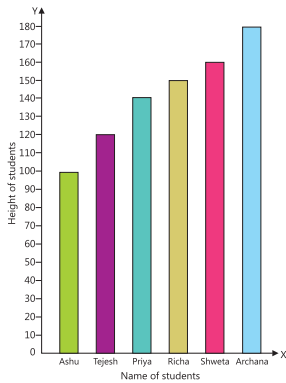
## Practice Exercise 22.2

1.	Class	First	Second	Third	Fourth	Fifth
	Number of students	40	60	80	120	140

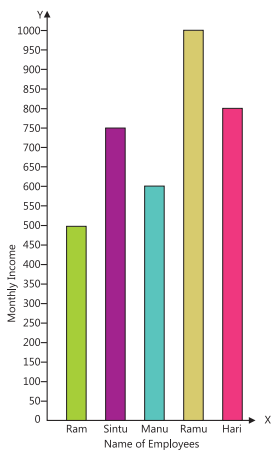
Show the above data by a bar graph.



2.	Name	Ashu	Tejesh	Priya	Richa	Shweta	Archana
	Height	100	120	140	150	160	180



3.	Ram	Sintu	Manu	Ramu	Hari
	₹ 500	₹ 750	₹ 600	₹ 1000	₹ 800



4. (a) Number of bottles of sprite sell =  $\frac{1}{2}$  of 160 = 80

(b) Number of bottles of pepsi sell =  $\frac{1}{4}$  of 160 = 40

(c) Number of bottles of coca-cola sell =  $\frac{1}{8}$  of 160 = 20

(d) Number of bottles of mrinda sell =  $\frac{1}{8}$  of 160 = 20

5. (a) Total number of people = 52 + 76 + 32 + 20 = 180

(b) People like winter season = 76

(c) People like summer season = 20

(d) People like spring season than rainy season = 52 - 32 = 20

### Practice Exercise 23.1

1. (a) 2 km + 3 km + 1 km + 3 km + 4 km = 13 km

(b) 3 km + 1 km + 3 km = 7 km

(c) Hospital, Bank, Park and Shopping Mall.

### Practice Exercise 23.2

1. (a) Length of the window = 2 m

(b) Perimeter of the room =  $2(l + b)$   
=  $2(11 + 8)$  m  
=  $2 \times 19$  m  
= 38 m

(c) length = 11 m, width = 8 m

(d) Area of a room =  $l \times b = 11 \text{ m} \times 8 \text{ m} = 88 \text{ m}^2$

### Practice Exercise 23.3

(a) sun (b) car (c) moon (d) house (e) motar cycle (f) flower

### Practice Exercise 23.4

1. (a) 450 km 2. Do it yourself. 3. Do it yourself.

### Model Test Paper-I

1. (a) 9,37,62,801 = 9,00,00,000 + 30,00,000 + 7,00,000 + 60,000 + 2,000 + 800 + 0 + 1 (b) 14,36,424 = 10,00,000 + 4,00,000 + 30,000 + 6,000 + 400 + 20 + 4 (c) 97,36,02,105 = 90,00,00,000 + 7,00,00,000 + 30,00,000 + 6,00,000 + 0 + 2,000 + 100 + 0 + 5 (d) 28,35,17,893 = 20,00,00,000 + 8,00,00,000 + 30,00,000 + 5,00,000 + 10,000 + 7,000 + 800 + 90 + 3 (e) 5,69,341 = 5,00,000 + 60,000 + 9,000 + 300 + 40 + 1 (f) 83,10,39,612 = 80,00,00,000 + 3,00,00,000 + 10,00,000 + 0 + 30,000 + 9,000 + 600 + 10 + 2

2. (a) > (b) = (c) < (d) > 3. (a) LXI = 50 + 10 + 1 = 61

(b)  $LXXVII = 50 + 10 + 10 + 5 + 2 = 77$  (c)  $XL = 50 - 10 = 40$   
 (d)  $XCV = (100 - 10) + 5 = 90 + 5 = 95$  (e)  $XXXI = 10 + 10 + 10 + 1 = 31$  (f)  $LXXXVIII = 50 + 10 + 10 + 10 + 8 = 88$  (g)  $D = 500$   
 (h)  $LXX = 50 + 10 + 10 = 70$  (i)  $XXXI = 10 + 10 + 10 + 1 = 31$

4. (a) 29,274 (b) 51,678 (c) 51,678 (d) 19,676 (e) 14,790 (f) 7225

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

(b) 
$$\begin{array}{r} \boxed{2} \\ \boxed{1} \\ \phantom{1} \ 8 \ 3 \\ \times \ 9 \ 6 \\ \hline 4 \ 9 \ 8 \\ + \ 7 \ 4 \ 7 \times \\ \hline 7 \ 9 \ 6 \ 8 \end{array}$$

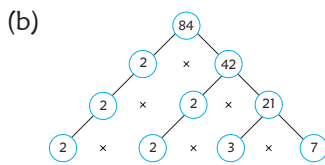
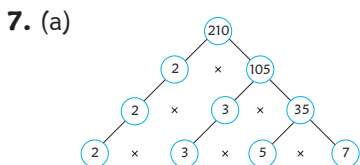
(c) 
$$\begin{array}{r} \boxed{3} \ \boxed{2} \\ \boxed{2} \ \boxed{1} \\ 9 \ 6 \ 4 \\ \times \ 6 \ 4 \\ \hline 3 \ 8 \ 5 \ 6 \\ + \ 5 \ 7 \ 8 \ 4 \times \\ \hline 6 \ 1 \ 6 \ 9 \ 6 \end{array}$$

(d) 
$$\begin{array}{r} \boxed{7} \\ \boxed{4} \\ \phantom{1} \ 1 \ 8 \\ \times \ 9 \ 6 \\ \hline 1 \ 0 \ 8 \\ + \ 1 \ 6 \ 2 \times \\ \hline 1 \ 7 \ 2 \ 8 \end{array}$$

(e) 
$$\begin{array}{r} \boxed{6} \ \boxed{5} \\ \boxed{4} \ \boxed{4} \\ 9 \ 9 \ 8 \\ \times \ 7 \ 5 \\ \hline 4 \ 9 \ 9 \ 0 \\ + \ 6 \ 9 \ 8 \ 6 \times \\ \hline 7 \ 4 \ 8 \ 5 \ 0 \end{array}$$

(f) 
$$\begin{array}{r} \boxed{2} \ \boxed{2} \ \boxed{2} \ \boxed{1} \\ 2 \ 6 \ 7 \ 8 \ 4 \\ \times \ 3 \ 0 \ 0 \\ \hline 0 \ 0 \ 0 \ 0 \ 0 \\ + \ 0 \ 0 \ 0 \ 0 \ 0 \times \\ 8 \ 0 \ 3 \ 5 \ 2 \times \times \\ \hline 8 \ 0 \ 3 \ 5 \ 2 \ 0 \ 0 \end{array}$$

6. (a)  $2 [19 - \{7 + 12 \div 4\}]$  (b)  $40 - \{16 + 16 - (12 \div 3)\}$   
 $2 [19 - \{7 + 3\}]$   $40 - \{16 + 16 - 4\}$   
 $2 [19 - 10]$   $40 - \{32 - 4\}$   
 $2 \times 9 = 18$   $40 - 28 = 12$   
 (c)  $48 \div \{26 - [14 - (\overline{16 - 12})]\}$  (d)  $[\{66 - (13 + 14) \div 3\}] + 9$   
 $48 \div \{26 - [14 - 4]\}$   $[[66 - 27 \div 3]] + 9$   
 $48 \div \{26 - 10\}$   $66 - 9 + 9$   
 $48 \div 16 = 3$   $= 66$   
 (e)  $15 + 9 \div 3 - [5 \times 3 - \{5 - (8 - 5)\}]$   
 $= 15 + 3 [15 - \{5 - 3\}]$   
 $= 18 - [15 - 2] = 5$   
 (f)  $9 \{20 - 3 \text{ of } 5 + (20 + 40 - 30 \div 6)\}$   
 $9 + \{20 - 3 \times 5 + (60 - 5)\}$   
 $9 + \{20 - 15 + 55\}$   
 $9 + \{75 - 15\}$   
 $9 + 60 = 69$



8. (a) 5, 7 (c) 71, 73

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## Model Test Paper-III

1. (a)  $\frac{9 + 11 + 13 + 15 + 17}{5} = \frac{65}{5} = 13$   
 (b)  $\frac{1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10}{10} = \frac{55}{10} = 5.5$   
 (c)  $\frac{51 + 53 + 55 + 57 + 59}{5} = \frac{275}{5} =$   
 (d)  $\frac{5.3 + 6.7 + 7.4 + 8.2}{4} = \frac{27.6}{4} = 6.9$
2. (a) 45 ml to 1 litre =  $\frac{45 \text{ ml}}{1000 \text{ ml}} = \frac{9}{200} = 9:200$   
 (b) 1 m 20 cm to 45 cm =  $\left(\frac{100 + 20}{45}\right) \text{ cm} = \frac{120}{45} = \frac{24}{9} = 24 : 9$   
 (c) 1 year to a month =  $\frac{12 \text{ month}}{1 \text{ month}} = \frac{12}{1} = 12 : 1$   
 (d) 75 paise to ₹ 2 =  $\frac{75 \text{ paise}}{200 \text{ paise}} = \frac{3}{8} = 3 : 8$   
 (e) 80 g to 3 kg =  $\frac{80 \text{ g}}{3000 \text{ g}} = \frac{2}{75} = 2 : 75$   
 (f) 2.75 to 3.25 =  $\frac{₹ 2.75}{₹ 3.25} = \frac{11}{13} = 11 : 13$
3. (a) 72 : 9 :: 40 : 5      (b) 4 : 7 :: 40 : 70      (c) 4 : 3 :: 24 : 18  
 (d) 5 : 2 :: 35 : 14      (e) 15 : 24 :: 5 : 8      (f) 7 : 5 :: 14 : 10
4. (a) 45 km/hr =  $45 \times \frac{5}{18} = \frac{25}{2} = 12.5 \text{ m/sec.}$   
 (b) 108 km/hr =  $108 \times \frac{5}{18} = 6 \times 5 = 30 \text{ m/sec.}$   
 (c) 72 km/hr =  $72 \times \frac{5}{18} = 4 \times 5 = 20 \text{ m/sec.}$   
 (d) 24 km/hr =  $24 \times \frac{5}{18} = \frac{20}{3} = 6.66 \text{ m/sec.}$
5. (a) 10 : 45      (b) 03 : 20      (c) 6 : 00

6. (a)

min.	sec.
1 7	3 4
+ 1 2	2 4
2 9	5 8

(b)

hr.	min.
1	3 6
5	4 2
8	1 8

(c)

week	days
1	6
+ 1	2
9	1

(b)

years	months
1	6
9	1 1
+ 2	1 1
1 2	5

5. (a) AB, BC, CD, DA, AC, and DB  
 (b) AB, BC, CD, DE, AE, EC and AD  
 (c) QR, RP, QP and TS

### Model Test Paper-IV

1. (a) half (b) longest (c) half (d) 2
2. (a)  $65^\circ + 80^\circ + 115^\circ + 110^\circ = 370^\circ = \text{Not possible}$   
 (b)  $135^\circ + 68^\circ + 74^\circ + 85^\circ = 362^\circ = \text{Not possible}$   
 (c)  $92^\circ + 98^\circ + 76^\circ + 84^\circ = 350^\circ = \text{Not possible}$   
 (d)  $100^\circ + 80^\circ + 100^\circ + 80^\circ = 360^\circ = \text{Possible}$
3. (a) perimeter =  $2(l + b) = 2(7 + 5) = 2 \times 12 = 24 \text{ cm}$   
 (b) perimeter =  $(l + b) = 2(93 + 52) = 2 \times 145 = 290 = \text{cm}$   
 (c) perimeter =  $2(l + b) = 2(115 + 75) = 2 \times 190 = 380 \text{ cm}$   
 (d) perimeter =  $2(l + b) = 2(13 + 5) = 2 \times 18 = 36 \text{ cm}$   
 (e) perimeter =  $2(l + b) = 2(134 + 69) = (2 \times 203) = 406 \text{ cm}$   
 (f) perimeter =  $2(l + b) = 2(18 + 11) = 2 \times 29 = 58 \text{ cm}$
4. (a) 1st area of rectangle =  $ABCD = 8 \times 3 \text{ m}^2 = 24 \text{ m}^2$   
 IInd area of rectangle =  $PQBO = 8 \times 3 \text{ m}^2 = 24 \text{ m}^2$   
 Area of total figure =  $24 \text{ m}^2 + 24 \text{ m}^2 = 48 \text{ m}^2$   
 (b) Area of square PQRS =  $4 \text{ m} \times 4 \text{ m} = 16 \text{ m}^2$   
 Area of rectangle ABCD =  $8 \text{ m} \times 2 \text{ m} = 16 \text{ m}^2$   
 Total area of figure =  $16 \text{ m}^2 + 16 \text{ m}^2 = 32 \text{ m}^2$
5. (a) 15, 18, 21 (b) 30, 36, 42 (c) 30, 35, 40 (d) 60, 72, 84 (e) 56, 70, 84 (f) 10, 12, 14
6. Do it yourself.
7.  $1 \text{ cm} = 400 \text{ km}$ , so  $2 \text{ cm} = 2 \times 400 = 800 \text{ km}$ .

