

**READ INDIA**  
**Maths**

**Teacher's Manual**

**Class VI**

Written by :  
Priyanka



**READ INDIA**  
A Unit of Vidyalaya Prakashan  
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**Sales Office :**

C-24, Jwala Nagar, Transport Nagar  
Meerut - 250002  
Ph. : 0121 - 2400630, 8899271392

**Head Office :**

A-102, Chandar Vihar  
Delhi - 110092

**website :**

[www.vidyalayaprakashan.com](http://www.vidyalayaprakashan.com)

**e-mail :**

[vidyalayaprakashan@yahoo.co.in](mailto:vidyalayaprakashan@yahoo.co.in)  
[vidyalayaprakashan@gmail.com](mailto:vidyalayaprakashan@gmail.com)

# Chapter

## 1

# Knowing Our Numbers

---

### ► Exercise – 1A

- Q1.** (a) 58, 423, 202  
(b) 9,05,00,041  
(c) 8,572  
(d) 2,01,405  
(e) 10,12,11,304
- Q2.** (a) 8,75,95,762 – Eight crore seventy five lakh ninety-nine thousand seven hundred sixty two  
(b) 85,46,283 – Eighty five lakh forty six thousand two hundred eighty three  
(c) 9,99,00,046 – Nine crore ninety nine lakh forty six.  
(d) 9,84,32,701 – Nine crore eighty four lakh, thirty two thousand seven hundred one.
- Q3.** (a) 7,804,931 – Seven million eight hundred four thousand nine hundred thirty one.  
(b) 99,985,102 – Ninety nine million nine hundred eighty five thousand one hundred two.  
(c) 7,432,283 – Seven million four hundred thirty two thousand two hundred eighty three.  
(d) 78,921,092 – Seventy eight million nine hundred twenty one thousand ninety two.

**Q4.** TC C TL L TTH TH H T O  
 3 6 7 8 2 9 7 0 4

The place value of 7 at lakh place =  $7 \times 1000000$   
 = 7000000

The place value of 7 at hundreds place =  $7 \times 100$   
 = 700

Difference =  $7000000 - 700 = 69,99,300$

**Q5.** TC C TL L TTH TH H T O  
 2 7 6 5 0 9 3 4

The place value of 7 at lakh place =  $7 \times 1000000$   
 = 7000000

The place value of 7 = 7

Difference =  $7000000 - 7 = 69,99,993$

**Q6.** The largest 6 digit number = 999999

The smallest 6 digit number = 100000

Number of 6 digits numbers =  $(999999 - 100000) + 1$   
 = 9,00,000

**Q7. (a)**  $(9 \times 1000000) + (1 \times 100000) + (1 \times 10000)$   
 $+ (5 \times 100) + (1 \times 10)$

**(b)**  $(6 \times 1000000) + (6 \times 10000) + (6 \times 1000) + (6 \times 1)$

**(c)**  $(2 \times 1000) + (4 \times 10000) + (5 \times 1000) + (6 \times 100)$   
 $+ (9 \times 1)$

**(d)**  $(3 \times 10000) + (8 \times 1000) + (9 \times 100) + (2 \times 10) + (7 \times 1)$

**Q8. (a)** Smallest = 4057, Greatest = 7540

**(b)** Smallest = 3045, Greatest = 5430

**(c)** Greatest = 7621, Smallest = 1267

**Q9. (a)** Smallest = 1158, Greatest = 8851

**(b)** Smallest = 4009, Greatest = 9940

**(c)** Greatest = 3378, Smallest = 8873



**Q10.** Fill the correct symbol  $>$  or  $<$  or  $=$

(a) 47893501  47894021

(b) 10357690  11243567

(c) 5572014  10235401

(d) 27596381  7965412

**Q11.** (a) 1712040  $>$  1704382  $>$  1702497  $>$  201200  $>$  200175  
 $>$  199988

(b) 102345680  $>$  63521047  $>$  63514759  $>$  7355014  
 $>$  7354206

**Q12.** (a) 700087  $<$  8014257  $<$  8014306  $<$  8015032  $<$  10012458

(b) 990357  $<$  9873426  $<$  9874012  $<$  24615019  
 $<$  24620010

### ➔ Exercise – 1B

**Q1.** Population of Sundarnagar in the year 1991 = 2,35,471

Population increased = 72,958

Population of city in 2001 = 2,35,471 + 72,958

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

$\therefore$  Population of city in 2001 is 3,08,429.

**Q2.** Number of bicycles sold in the year 2002-2003

$$= 7,43,0000$$

Number of bicycles sold in the year 2003-2004

$$= 8,00,100$$

We know 8,00,000  $>$  7,43,000

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

In 2003-2004 more cycles were sold by 57,100.

**Q3.** Number of pages in a copy = 12

Number of pages in 11,980 copies =  $12 \times 11980$

$$\begin{array}{r} 11980 \\ \times 12 \\ \hline 23960 \\ 11980 \times \\ \hline 143760 \end{array}$$

$\therefore$  1,43,760 pages are printed everyday.

**Q4.** Let the greater number be  $x$

$$x - 6873547 = 9476583$$

$$x = 9476583 + 6873547$$

$$\begin{array}{r} 9476583 \\ + 6873547 \\ \hline 1,63,50,130 \end{array}$$

$\therefore$  Greater number is 1,63,50,130.

**Q5.** Number of screws packed in 1 carton = 6895

Number of screws packed in 1685 cartons =  $6895 \times 1685$

$$\begin{array}{r} 6895 \\ \times 1685 \\ \hline 34475 \\ 55160 \times \\ 41370 \times \times \\ 6895 \times \times \times \\ \hline 11618075 \end{array}$$

$\therefore$  1,16,18,075 screws can be packed in 1685 cartons.

**Q6.** To stitch a shirt cloth needed = 2 m 15 cm

$$= 2 \times 100 + 15 \text{ cm}$$

$$= 200 + 15 \text{ cm}$$

$$= 215 \text{ cm}$$

$$\text{Cloth length available} = 40 \text{ m}$$

$$= 40 \text{ m} \times 100$$

$$= 4000 \text{ cm}$$

$$\text{Number of shirts can be stitched} = 4000 \div 215$$

$$\begin{array}{r} 18 \\ \hline 215 \overline{) 4000} \phantom{0} \\ \underline{215} \phantom{0} \phantom{0} \\ 1850 \phantom{0} \\ \underline{1720} \phantom{0} \\ 130 \phantom{0} \\ \hline \end{array}$$

$\therefore$  18 shirts can be stitched and 1 m 30 cm cloth will left.

**Q7.** Weight of a box = 4 kg 500 g

$$= 4 \times 1000 + 500 \text{ g} = 4000 + 500 \text{ g}$$

$$= 4500 \text{ g}$$

$$\text{Total weight that can be loaded} = 800 \text{ kg}$$

$$= 800 \times 1000 \text{ g}$$

$$= 800000 \text{ g}$$

$$\text{Number of boxed that can be loaded} = 800000 \div 4500$$

$$\begin{array}{r} 177 \\ \hline 4500 \overline{) 800000} \phantom{0} \\ \underline{4500} \phantom{0} \phantom{0} \\ 35000 \phantom{0} \\ \underline{31500} \phantom{0} \\ 35000 \phantom{0} \\ \underline{31500} \phantom{0} \\ 3500 \phantom{0} \\ \hline \end{array}$$

∴ Number of boxes that can be loaded are 177.

**Q8.** Total quantity of curd = 4 l 500 ml  
 $= 4 \times 1000 + 500 \text{ ml}$   
 $= 4500 \text{ ml}$

Capacity of each glass = 25 ml

Total number of glasses can be filled =  $4500 \div 25$

$$\begin{array}{r} 180 \\ \hline 25 \overline{) 4500} \phantom{0} \\ \underline{25} \phantom{0} \\ 200 \\ \underline{200} \\ 0 \\ \phantom{0} \\ \underline{\phantom{0} - 0} \\ \phantom{0} \\ \underline{\phantom{0} 0} \\ \phantom{0} \end{array}$$

∴ In 180 glasses each of 25 ml capacity can be filled.

► **Exercise – 1C**

- Q1.** (a)  $56 + 33 = 60 + 30 = 90$   
(b)  $42 + 77 = 40 + 80 = 120$   
(c)  $487 + 273 = 490 + 270 = 760$   
(d)  $185 + 256 = 190 + 260 = 450$
- Q2.** (a)  $8654 - 759 = 8660 - 760 = 7900$   
(b)  $25,448 - 6,314 = 25400 - 6300 = 19100$   
(c)  $88 - 32 = 90 - 30 = 60$   
(d)  $1253 - 691 = 1250 - 690 = 560$
- Q3.** (a)  $578 \times 161 = 600 \times 200 = 1,20,000$   
(b)  $5281 \times 3491 = 5000 \times 3500 = 1,75,00,000$   
(c)  $1291 \times 592 = 1300 \times 600 = 7,80,000$   
(d)  $9250 \times 29 = 10,000 \times 30 = 3,00,000$

### ➔ Exercise – 1D

- Q1.** (a) XXVI (b) XXXI  
(c) XLIX (d) XLV  
(e) LXXII (f) LXXXIV  
(g) LXXXIX (h) XCIII  
(i) KXVI (j) KDCLXXVIII  
(k) KKCCCLIX
- Q2.** (a) 24 (b) 254  
(c) 949 (d) 99  
(e) 944 (f) 1016  
(g) 1019 (h) 79

### ➔ Multiple Choice Questions

**Q1.** (iii) 102

**Q2.** (i) 49500

The place value of 5 at ten thousand place = 50000

The place values of 5 at hundred place = 500

$$\begin{aligned} \text{Difference} &= 50000 - 500 \\ &= 49500 \end{aligned}$$

**Q3.** (iv) 8008808

The place value of 8 at ten lakh place = 8000000

The place values of 8 at 10 thousand place = 80000

The place value of 8 at thousand = 8000

The place value of 8 at once = 8

$$\text{Sum} = 8008808$$

**Q4.** (ii) 100000

$$5\text{-digit greater number} = 99999$$

$$\text{Successor of it} = \begin{array}{r} + 1 \\ \hline \end{array}$$

$$= \underline{\underline{100000}}$$

**Q5.** (ii) 99999

6- digit smaller number = 100000

$$\begin{array}{r} \text{Predecessor of it} = \\ = \end{array} \begin{array}{r} - \quad 1 \\ \hline 99999 \end{array}$$

**Q6.** (iii) 900009

**Q7.** (iii) 900000

**Q8.** (ii) 240

CCXL = 240

**Q9.** (ii) 19,000

$$6754 + 12360 = 7000 + 12000 = 19000$$

**Q10.** (iii) 100



# Chapter

## 2

# Whole Numbers

---

### ► Exercise – 2A

Q1. 1, 0

Q2. 20

Q3. (a)  $2345670 + 1 = 2345671$

(b)  $100199 + 1 = 100200$

(c)  $13550500 + 1 = 13550501$

(d)  $999 + 1 = 1000$

Q4. (a)  $185999 - 1 = 185998$

(b)  $9999999 - 1 = 9999998$

(c)  $100000 - 1 = 99,999$

(d)  $7654321 - 1 = 7654320$

Q5. (a) False

(b) True

(c) False

(d) False

(e) True

Q6. 75,10,000, 75,09,999, 75,09,998

### ► Exercise – 2B

Q1. (a) 432

(b) 8042

(c) 23

(d) 0

**Q2. (a)**  $2756 + 7213 = 9969$

$$7213 + 2756 = 9969$$

**(b)**  $785 + 607 = 1392$

$$607 + 785 = 1392$$

**Q3. (a)**  $837 + 208 + 363 = (837 + 363) + 208$

$$= 1200 + 208$$

$$= 1408$$

**(b)**  $1962 + 453 + 1538 + 647$

$$= (1962 + 1538) + (453 + 647)$$

$$= 3500 + 1100$$

$$= 4600$$

**(c)**  $2 + 3 + 4 + 5 + 35 + 36 + 37 + 38$

$$= (2 + 3 + 4 + 5) + (35 + 36 + 37 + 38)$$

$$= 40 + 40 + 40 + 40$$

$$= 160$$

**Q4. (a)**  $6784 + 9999 = 6783 + (1 + 9999)$

$$= 6783 + 10000$$

$$= 16783$$

**(b)**  $10578 + 99999 = 10577 + (1 + 9999)$

$$= 10577 + 100000$$

$$= 110577$$

**Q5. (a)**

|     |     |     |     |
|-----|-----|-----|-----|
| $a$ | 18  | 17  | 4   |
| $b$ | $d$ | 14  | 11  |
| $c$ | 9   | 10  | $g$ |
| 19  | $e$ | $f$ | 16  |

Diagonal wise sum =  $4 + 14 + 9 + 19$

$$= 46$$



$$\begin{aligned}\text{Column wise sum} &= 4 + 11 + g + 16 \\ g &= 46 - 16 - 11 - 4 = 15\end{aligned}$$

$$\begin{aligned}\text{Column wise sum} &= 4 + 11 + 15 + 16 \\ &= 46\end{aligned}$$

$$\begin{aligned}\text{Row wise sum} &= a + 18 + 17 + 4 \\ a &= 46 - 18 - 17 - 4 \\ a &= 7\end{aligned}$$

$$\begin{aligned}\text{Row wise sum} &= 7 + 18 + 17 + 4 \\ &= 46\end{aligned}$$

$$\begin{aligned}\text{Diagonal wise sum} &= 7 + d + 10 + 16 \\ d &= 46 - 7 - 10 - 16 \\ d &= 13\end{aligned}$$

$$\begin{aligned}\text{Column wise sum} &= 4 + 11 + 15 + 16 \\ &= 46\end{aligned}$$

$$\begin{aligned}\text{Row wise sum} &= b + 13 + 14 + 11 \\ b &= 46 - 13 - 14 - 11 \\ b &= 8\end{aligned}$$

$$\text{Row wise sum} = 7 + 18 + 17 + 4 = 46$$

$$\begin{aligned}\text{Column wise sum} &= 7 + 8 + c + 19 \\ c &= 46 - 7 - 8 - 19 = 12\end{aligned}$$

$$\text{Row wise sum} = 7 + 18 + 17 + 4 = 46$$

$$\begin{aligned}\text{Column wise sum} &= 18 + 13 + 9 + e = 46 \\ e &= 46 - 18 - 13 - 9\end{aligned}$$

$$\text{Row wise sum} = 7 + 18 + 17 + 4 = 46$$

$$\begin{aligned}\text{Column wise sum} &= 17 + 14 + 10 + f \\ &= 46 \\ f &= 46 - 17 - 14 - 10 \\ f &= 5\end{aligned}$$

|    |    |     |    |
|----|----|-----|----|
| 17 | 18 | 17  | 4  |
| 8  | 13 | 14  | 11 |
| 12 | 9  | 10  | 15 |
| 19 | 6  | $f$ | 16 |

(b) Do yourself

**Q6. (a)**  $1010101 - 656565 = 353536$

$$353536 + 656565 = 1010101$$

(b)  $500000 - 79879 = 4,20,121$

$$420121 + 79879 = 500000$$

**Q7. (a)**  $1000000$

$$\begin{array}{r} 1000000 \\ - 29571 \\ \hline \end{array}$$

$$970429$$

(b)  $576$

$$\begin{array}{r} 576 \\ - 349 \\ \hline \end{array}$$

$$227$$

**Q8.** Population of a village = 7500

Number of men = 2489

Number of women = 1865

Number of children =  $7500 - (2489 - 1865)$

$$= 7500 - 4354$$

$$= 3146$$

**Q9.**  $1000000 - 9999 = 990001$

**Q10. (a)**  $n - 18 = 39$

$$n = 39 + 18$$

$$= 57$$

(b)  $n - 20568 = 21403$

$$\begin{aligned}n &= 21403 + 20568 \\ &= 41,971\end{aligned}$$

(c)  $n + 35 = 101$

$$\begin{aligned}n &= 101 - 35 \\ &= 66\end{aligned}$$

(d)  $n + 4 = 9$

$$\begin{aligned}n &= 9 - 4 \\ &= 5\end{aligned}$$

### ► Exercise – 2C

**Q1.** (a) 0

(b) 245

(c) 5

(d) 91

(e) 593

**Q2.** (a)  $8759 \times (94 + 6) = 8759 \times 100$   
 $= 875900$

(b)  $9870 \times (561 - 461) = 9870 \times 100$   
 $= 987000$

(c)  $16825 \times (16825 - 6825) = 16825 \times 10000$   
 $= 168250000$

(d)  $3845 \times 5 \times 782 + 769 \times 25 \times 218$   
 $= 3845 \times 5 \times 782 \times 769 \times 5 \times 5 \times 218$   
 $= 3845 \times 5 \times 782 + 3845 \times 5 \times 218$   
 $= 3845 \times 5 \times (782 + 218)$   
 $= 19225 \times 1000$   
 $= 19225000$

**Q3.** (a)  $1005 \times 168$

$$= (1000 + 5) \times 168$$

$$\begin{aligned} &= 168 \times 1000 + 5 \times 168 \quad (\text{Distributive Property}) \\ &= 168000 + 840 \\ &= 168840 \end{aligned}$$

**(b)**  $854 \times 102$

$$\begin{aligned} &= 854 \times 100 + 854 \times 2 \quad (\text{Distributive Property}) \\ &= 85400 + 1708 \\ &= 87108 \end{aligned}$$

**(c)**  $439 \times 997$

$$\begin{aligned} &= 439 \times (1000 - 3) \\ &= 439 \times 1000 - 439 \times 3 \quad (\text{Distributive Property}) \\ &= 439000 - 1317 \\ &= 437683 \end{aligned}$$

**(d)**  $1553 \times 198$

$$\begin{aligned} &= 1553 \times 200 - 1553 \times 2 \quad (\text{Distributive Property}) \\ &= 310600 - 3106 \\ &= 3,07,494 \end{aligned}$$

**Q4. (a)**  $3576 \times (10 - 1)$

$$\begin{aligned} &= 3756 \times 10 - 3576 \times 1 \\ &= 35760 - 3576 \\ &= 32184 \end{aligned}$$

**(b)**  $2437 \times (1000 - 1)$

$$\begin{aligned} &= 2437 \times 1000 - 2437 \times 1 \\ &= 2437000 - 2437 \\ &= 24,34,563 \end{aligned}$$

**(c)**  $847 \times (100 - 1)$

$$\begin{aligned} &= 847 \times 100 - 847 \times 1 \\ &= 84700 - 847 \\ &= 83853 \end{aligned}$$

**(d)**  $504 \times (40 - 5)$

$$\begin{aligned}
 &= (504 \times 40) - (504 \times 5) \\
 &= 20160 - 2520 \\
 &= 17,640
 \end{aligned}$$

- Q5.** Quantity of petrol filled on Monday = 40 l  
 Quantity of petrol filled on Tuesday = 50 l  
 Total Quantity filled = (40 + 50) l = 90 l  
 Cost of petrol (per l) = ₹ 44  
 Total money spent = ₹ 44 × 90  
 = ₹ 3960

- Q6.** Cost of each chair = ₹ 1065  
 Cost of 50 chairs = ₹ 1065 × 50  
 = ₹ 53250  
 Cost of each blackboard = ₹ 1645  
 Cost of 30 blackboard = ₹ 1645 × 30  
 = ₹ 49350

∴ Total bill = ₹ (53250 + 49350)  
 = ₹ 102600

- Q7.** (a) 65007  
 (b) 0  
 (c) not defined  
 (d) 1482

**Q8.**  $87 \overline{)13601} (156$

$$\begin{array}{r}
 87 \\
 \hline
 490 \\
 435 \\
 \hline
 551 \\
 522 \\
 \hline
 29
 \end{array}$$

Required number = 29

**Q9.** In ₹ 29; number of bananas can be purchased = 12

In ₹ 1, number of bananas can be purchased  $\frac{12}{29}$

In ₹ 1392, number of bananas can be purchased

$$= \frac{12}{29} \times 1392$$

$$= 576$$

**Q10.** Do yourself

➔ **Multiple Choice Questions**

**Q1.** (ii) 0

**Q2.** (i) 1

**Q3.** (ii) 1

**Q4.** (i)

$$\begin{aligned} 430 \times (8 + 2) &= 430 \times 10 \\ &= 4300 \end{aligned}$$

**Q5.** (iii)

$$\begin{aligned} \text{Dividend} &= \text{Divisor} \times \text{Quotient} + \text{Remainder} \\ &= 208 \times 7 + 35 \\ &= 1491 \end{aligned}$$

**Q6.**  $a \times (b \times c) = (a \times b) \times c$

**Q7.** (iii)



# Chapter

## 3

# Playing with Numbers

---

### ► Exercise – 3A

**Q1.** Do yourself

**Q2.** (a)  $36 = 1, 2, 3, 4, 6, 9, 12, 18, 36$

(b)  $23 = 1, 23$

(c)  $8 = 1, 2, 4, 8$

(d)  $20 = 1, 2, 4, 5, 10, 20$

(e)  $12 = 1, 2, 3, 4, 6, 12$

(f)  $27 = 1, 3, 9, 27$

(g)  $21 = 1, 3, 7, 21$

(h)  $15 = 1, 3, 5, 15$

**Q3.** (a)  $9 = 9, 18, 27, 36, 45$

(b)  $15 = 15, 30, 45, 60, 75$

(c)  $24 = 24, 48, 72, 96, 120$

(d)  $75 = 75, 150, 225, 300, 375$

(e)  $99 = 99, 198, 297, 396, 495$

(f)  $85 = 85, 170, 255, 340, 425$

(g)  $80 = 80, 160, 240, 320, 400$

**Q4.** Do yourself

**Q5.** (a) 2

(b) 4

(c) 2

(d) prime, composite

- (e) composite number  
 (f) prime number
- Q6.** (a) True  
 (b) True  
 (c) False  
 (d) True  
 (e) True
- Q7.** Prime numbers : 2, 3, 5, 7, 11, 13
- Q8.** (a)  $5 + 13$   
 (b)  $5 + 19$   
 (c)  $5 + 31$   
 (d)  $3 + 41$
- Q9.** (a)  $7 + 13 + 41$   
 (b)  $13 + 17 + 23$   
 (c)  $3 + 5 + 23$   
 (d)  $3 + 5 + 13$

➔ **Exercise – 3B**

**Q1.** Do yourself (Refer to divisibility rules)

**Q2. (a)**  $4765 * 2$   
 $4 + 7 + 6 + 5 + x + 2$   
 $24 + x$   
 $x = 0$

$\therefore 4765\underline{0}2$

**(b)**  $*6724$   
 $x + 6 + 7 + 2 + 4$   
 $x + 19$   
 $2 + 19 = 21$

$\therefore \underline{2}6724$



**Q3. (a)**  $92 * 389 \rightarrow$  Odd places  $= 9 + x + 8 = 17 + x$

$$\text{Even places} = 2 + 3 + 9 = 14$$

$$\text{Difference} = 17 + x - 14$$

$$= 3 + x$$

$$= 8$$

$\therefore$  928389

**(b)**  $8\_9484 \rightarrow$  Odd places  $= 8 + 9 + 8$

$$= 25$$

$$\text{Even places} = x + 4 + 4$$

$$= x + 8$$

$$\text{Difference} = 25 - x - 8$$

$$= 17 - x$$

$$x = 6$$

$\therefore$  869484

**Q4.** Factors of 12 are 1, 2, 3, 4, 6, 12

Therefore, the number also be divisible by 1, 2, 3, 4 and 6.

### ► **Exercise – 3C**

**Q1. (a)** Factors of 56 = 1, 2, 4, 7, 8, 14, 28, 56

Factors of 120 = 1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24,  
30, 60, 120

Common factors = 1, 2, 4, 8

**(b)** Factors of 15 = 1, 3, 5, 15

Factors of 25 = 1, 5, 25

Common factors = 1, 5

**(c)** Factors of 5 = 1, 5

Factors of 15 = 1, 3, 5, 15

Factors of 25 = 1, 5, 25

Common factors = 1, 5

- (d) Factors of 4 = 1, 2, 4  
Factors of 8 = 1, 2, 4, 8  
Factors of 12 = 1, 2, 3, 4, 6, 12  
Common factors = 1, 2, 4

**Q2. (a)** Multiple of 6 = 6, 12, 18, 24, 30, 36, 42, 48, 54, 60,  
72, ...

Multiple of 8 = 8, 16, 24, 32, 40, 48, 56, 64, 72  
Common multiples = 24, 48, 72

- (b) Multiple of 12 = 12, 24, 36, 48, 60, 72, 84, 96, 108, 120  
Multiple of 18 = 18, 36, 54, 72, 90, 108, ...  
Common multiples = 36, 72, 108

**Q3. (a)** Factors of 81 = 1, 3, 9, 27, 81  
Factors of 16 = 1, 2, 4, 8, 16  
Common factor = 1

Since, common factor is 1, therefore they are coprime.

- (b) Factors of 17 = 1, 17  
Factors of 68 = 1, 2, 4, 17, 34, 68  
Common factor = 1, 17

Since, both have more than one common factor, they are not coprime.

- (c) Factors of 18 = 1, 2, 3, 6, 9, 18  
Factors of 35 = 1, 5, 7, 35  
Common factor = 1

Since, both have only one common factor, *i.e.*, 1 therefore they are coprime.

- (d) Factors of 30 = 1, 2, 3, 5, 6, 15, 30  
Factors of 415 = 1, 5, 83, 415  
Common factor = 1, 5

Since, both have more than one common factor they are not coprime.

**Q4.**  $2 \times 3 \times 5 \times 7 = 210$

**Q5.** 179, 277, 137, 157, 331, 397

**Q6. (a)**

|   |    |
|---|----|
| 2 | 36 |
| 2 | 18 |
| 3 | 9  |
| 3 | 3  |
|   | 1  |

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

**(b)**

|   |     |
|---|-----|
| 2 | 108 |
| 2 | 54  |
| 3 | 27  |
| 3 | 9   |
| 3 | 3   |
|   | 1   |

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

**(c)**

|    |     |
|----|-----|
| 2  | 234 |
| 3  | 117 |
| 3  | 39  |
| 13 | 13  |
|    | 1   |

$$234 = 2 \times 3 \times 3 \times 13$$

(d)

|    |      |
|----|------|
| 2  | 1224 |
| 2  | 612  |
| 2  | 306  |
| 3  | 153  |
| 3  | 51   |
| 17 | 17   |
|    | 1    |

$$1224 = 2 \times 2 \times 2 \times 3 \times 3 \times 17$$

(e)

|    |      |
|----|------|
| 7  | 9317 |
| 11 | 1331 |
| 11 | 121  |
| 11 | 11   |
|    | 1    |

$$9317 = 7 \times 11 \times 11 \times 11$$

(f)

|   |      |
|---|------|
| 2 | 9000 |
| 2 | 4500 |
| 2 | 2250 |
| 3 | 1125 |
| 3 | 375  |
| 5 | 125  |
| 5 | 25   |
| 5 | 5    |
|   | 1    |

$$9000 = 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5 \times 5$$

(g)

|    |       |
|----|-------|
| 5  | 13915 |
| 11 | 2783  |
| 11 | 253   |
| 23 | 23    |
|    | 1     |

$$13915 = 5 \times 11 \times 11 \times 23$$

➔ **Exercise – 3D**

Q1. (a)

|   |    |   |    |   |    |
|---|----|---|----|---|----|
| 2 | 12 | 5 | 45 | 3 | 75 |
| 2 | 6  | 3 | 9  | 5 | 25 |
| 3 | 3  | 3 | 3  | 5 | 5  |
|   | 1  |   | 1  |   | 1  |

$$12 = 2 \times 2 \times 3$$

$$45 = 5 \times 3 \times 3$$

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

$$\text{H.C.F.} = 3$$

(b)

|    |    |   |     |   |    |
|----|----|---|-----|---|----|
| 7  | 91 | 2 | 112 | 7 | 49 |
| 13 | 13 | 2 | 56  | 7 | 7  |
|    | 1  | 2 | 28  |   | 1  |
|    |    | 2 | 14  |   |    |
|    |    | 7 | 7   |   |    |
|    |    |   | 1   |   |    |

$$91 = 7 \times 13$$

$$112 = 2 \times 2 \times 2 \times 2 \times 7$$

$$49 = 7 \times 7$$

$$\text{H.C.F.} = 7$$

(c)

|    |    |
|----|----|
| 2  | 34 |
| 17 | 17 |
|    | 1  |

|    |     |
|----|-----|
| 2  | 102 |
| 3  | 51  |
| 17 | 17  |
|    | 1   |

$$34 = 2 \times 17$$

$$102 = 2 \times 3 \times 17$$

$$\text{H.C.F.} = 2 \times 17 = 34$$

(d)

|   |    |
|---|----|
| 3 | 27 |
| 3 | 9  |
| 3 | 3  |
|   | 1  |

|   |    |
|---|----|
| 3 | 63 |
| 3 | 21 |
| 7 | 7  |
|   | 1  |

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

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

$$\text{H.C.F.} = 3 \times 3 = 9$$

(e)

|   |    |
|---|----|
| 2 | 30 |
| 3 | 15 |
| 5 | 5  |
|   | 1  |

|   |    |
|---|----|
| 2 | 42 |
| 3 | 21 |
| 7 | 7  |
|   | 1  |

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

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

$$\text{H.C.F.} = 2 \times 3$$

$$= 6$$

$$\begin{array}{r}
 \text{Q2. (a) } 390 \overline{) 663} \quad (1 \\
 \underline{390} \\
 273 \overline{) 390} \quad (7 \\
 \underline{273} \\
 117 \overline{) 273} \quad (2 \\
 \underline{234} \\
 39 \overline{) 117} \quad (3 \\
 \underline{117} \\
 \hline
 \times \\
 \hline
 \end{array}$$

So, 39 is the H.C.F.

$$\begin{array}{r}
 \text{(b)} \\
 1435 \overline{) 3535} \quad (2 \\
 \underline{2870} \\
 665 \overline{) 1435} \quad (2 \\
 \underline{1330} \\
 105 \overline{) 665} \quad (6 \\
 \underline{630} \\
 35 \overline{) 105} \quad (5 \\
 \underline{105} \\
 \hline
 \times \\
 \hline
 \end{array}$$

So, 35 is the H.C.F.

$$\begin{array}{r}
 \text{(c) } 7625 \overline{) 8175} \quad (1 \\
 \underline{7625} \\
 550 \overline{) 7625} \quad (13 \\
 \underline{7150} \\
 475 \overline{) 550} \quad (1 \\
 \underline{475} \\
 75 \overline{) 475} \quad (6 \\
 \underline{450} \\
 25 \overline{) 75} \quad (3 \\
 \underline{75} \\
 \hline
 \times \\
 \hline
 \end{array}$$

So, H.C.F. is 25.

$$\begin{array}{r}
 \text{(d) } 1276 \overline{) 1624} \quad (1 \\
 \underline{1276} \\
 348 \overline{) 1276} \quad (3 \\
 \underline{1044} \\
 232 \overline{) 348} \quad (1 \\
 \underline{232} \\
 116 \overline{) 232} \quad (2 \\
 \underline{232} \\
 \hline
 \times \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 116 \overline{) 522} \quad (4 \\
 \underline{464} \\
 58 \overline{) 116} \quad (2 \\
 \underline{116} \\
 \hline
 \times \\
 \hline
 \end{array}$$



Hence, 58 is H.C.F.

- Q3.** Clearly, we must find the greatest number which divided H.C.F. of  $(285 - 9)$  and  $(1249 - 7)$  respectively. 276 and 1242 will be the required largest number.

$$\begin{array}{r} 276 \overline{) 1242} \quad (4 \\ \underline{1104} \\ 138 \end{array} \quad \begin{array}{r} 276 \overline{) 276} \quad (2 \\ \underline{276} \\ \times \end{array}$$

Hence, the required number = 138

- Q4.** 8 m 25 cm =  $(8 \times 100 + 25)$  cm = 825 cm  
6 m 75 cm =  $(6 \times 100 + 75)$  cm = 675 cm  
4 m 50 cm =  $(4 \times 100 + 50)$  cm = 450 cm

$$\begin{array}{r} 675 \overline{) 825} \quad (1 \\ \underline{675} \\ 150 \end{array} \quad \begin{array}{r} 675 \overline{) 675} \quad (4 \\ \underline{600} \\ 75 \end{array} \quad \begin{array}{r} 675 \overline{) 150} \quad (2 \\ \underline{150} \\ \times \end{array}$$

Hence, H.C.F. of 825 and 675 is 75.

Now, we find the H.C.F. of 75 and 450.

$$\begin{array}{r} 75 \overline{) 450} \quad (6 \\ \underline{450} \\ \times \end{array}$$

Hence, the required rod = 75 cm

**Q5.** Two tankers contain 850 litre and 680 litre of petrol.

The maximum capacity of a container is H.C.F. of 680 and 850.

$$\begin{array}{r}
 680 \overline{) 850} \quad (1 \\
 \underline{680} \\
 170 \overline{) 680} \quad (4 \\
 \underline{680} \\
 \hline
 \times
 \end{array}$$

So, 170 litre being the maximum capacity of a container.

**Q6.** 20 m 16 cm =  $(20 \times 100 + 16) = 2016$  cm

15 m 60 cm =  $(15 \times 100 + 60) = 1560$  cm

Taking out H.C.F., throughout

$$\begin{array}{r}
 1560 \overline{) 2016} \quad (1 \\
 \underline{1560} \\
 456 \overline{) 1560} \quad (3 \\
 \underline{1368} \\
 192 \overline{) 456} \quad (2 \\
 \underline{384} \\
 72 \overline{) 192} \quad (2 \\
 \underline{144} \\
 48 \overline{) 72} \quad (1 \\
 \underline{48} \\
 24 \overline{) 48} \quad (2 \\
 \underline{48} \\
 \hline
 \times
 \end{array}$$

So, H.C.F. = 24

As this means the size of square is 24 cm.

Area of square =  $24 \times 24$

$$\text{No. of stones} = \frac{2016 \times 1560}{24 \times 24} = 5460 \text{ Ans.}$$

No. of squares stones involved are 5460.

- Q7.** Clearly  $(398 - 7)$ ,  $(436 - 11)$ ,  $(542 - 15)$  find out H.C.F. will be the largest number.

391, 425, 527

$$\begin{array}{r} 475 \overline{) 527} \quad (1 \\ \underline{425} \\ 102 \end{array} \quad \begin{array}{r} 102 \overline{) 425} \quad (4 \\ \underline{408} \\ 17 \end{array} \quad \begin{array}{r} 17 \overline{) 102} \quad (6 \\ \underline{102} \\ \times \end{array}$$
  
$$\begin{array}{r} 17 \overline{) 391} \quad (23 \\ \underline{391} \\ \times \end{array}$$

so, largest number = 17

➔ **Exercise – 3E**

**Q1. (a)**

|   |    |   |    |   |    |
|---|----|---|----|---|----|
| 3 | 45 | 2 | 50 | 2 | 90 |
| 3 | 15 | 5 | 25 | 3 | 45 |
| 5 | 5  | 5 | 5  | 3 | 15 |
|   | 1  |   | 1  | 5 | 5  |
|   |    |   |    |   | 1  |

Maximum times of 3 occur is 2

Maximum times of 2 occur is 1

Maximum times of 5 occur is 2

L.C.M. = 450

(b)

|   |    |   |    |   |    |
|---|----|---|----|---|----|
| 2 | 24 | 2 | 30 | 2 | 36 |
| 2 | 12 | 3 | 15 | 2 | 18 |
| 2 | 6  | 5 | 5  | 3 | 9  |
| 3 | 3  |   | 1  | 3 | 3  |
|   | 1  |   |    |   | 1  |

Maximum times of 2 occur is 3

Maximum time of 3 occur is 2

Maximum times of 5 occur is 1

L.C.M. = 360

(c)

|   |    |   |    |   |    |
|---|----|---|----|---|----|
| 2 | 48 | 2 | 72 | 3 | 96 |
| 2 | 24 | 2 | 36 | 2 | 32 |
| 2 | 12 | 2 | 18 | 2 | 16 |
| 2 | 6  | 3 | 9  | 2 | 8  |
| 3 | 3  | 3 | 3  | 2 | 4  |
|   | 1  |   | 1  | 2 | 2  |
|   |    |   |    |   | 1  |

$2 \times 2 \times 2 \times 2 \times 3$     $2 \times 2 \times 2 \times 3 \times 3$     $2 \times 2 \times 2 \times 2 \times 2 \times 3$

Maximum times of 2 occur is 5.

Maximum times of 3 occur is 2.

L.C.M. = 288

(d)

|   |    |
|---|----|
| 2 | 24 |
| 2 | 12 |
| 2 | 6  |
| 3 | 3  |
|   | 1  |

$$2 \times 2 \times 2 \times 3$$

Maximum times of two occur is 3.

Maximum time of 3 occur is 2.

$$\text{L.C.M.} = 2 \times 2 \times 2 \times 3 \times 3 = 72$$

|   |    |
|---|----|
| 3 | 36 |
| 3 | 12 |
| 2 | 4  |
| 2 | 2  |
|   | 1  |

$$3 \times 3 \times 2 \times 2$$

**Q2. (a)**

|   |               |
|---|---------------|
| 2 | 480, 720, 960 |
| 2 | 240, 360, 480 |
| 2 | 120, 180, 240 |
| 3 | 60, 90, 120   |
| 2 | 20, 30, 40    |
| 2 | 10, 15, 20    |
| 5 | 5, 15, 10     |
| 3 | 1, 3, 2       |
| 2 | 1, 1, 2       |
|   | 1, 1, 1       |

$$2 \times 2 \times 2 \times 3 \times 2 \times 2 \times 5 \times 3 \times 2 = 2880$$

(b)

|   |               |
|---|---------------|
| 2 | 168, 360, 432 |
| 2 | 84, 180, 216  |
| 2 | 42, 90, 108   |
| 3 | 21, 45, 45    |
| 3 | 7, 15, 18     |
| 7 | 7, 5, 6       |
| 5 | 1, 5, 6       |
| 3 | 1, 1, 6       |
| 2 | 1, 1, 2       |
|   | 1, 1, 1       |

$$2 \times 2 \times 2 \times 3 \times 3 \times 7 \times 5 \times 3 \times 2 = 15120$$

(c)

|   |             |
|---|-------------|
| 2 | 108, 96, 60 |
| 2 | 54, 48, 30  |
| 3 | 27, 24, 15  |
| 3 | 9, 8, 5     |
| 3 | 3, 8, 5     |
| 2 | 1, 8, 5     |
| 2 | 1, 4, 5     |
| 2 | 1, 2, 5     |
| 5 | 1, 1, 5     |
|   | 1, 1, 1     |

$$2 \times 2 \times 3 \times 3 \times 3 \times 2 \times 2 \times 2 \times 5 = 4320$$

(d)

|   |        |
|---|--------|
| 2 | 84, 56 |
| 2 | 42, 28 |
| 3 | 21, 14 |
| 7 | 7, 14  |
| 2 | 1, 2   |
|   | 1, 1   |

$$2 \times 2 \times 3 \times 7 \times 2$$

$$\text{L.C.M.} = 168$$

**Q3.** L.C.M. of 12, 16, 24, 36

$$\text{Required Number} = \text{L.C.M.} + 7$$

|   |                |
|---|----------------|
| 2 | 12, 16, 24, 36 |
| 2 | 6, 8, 12, 18   |
| 2 | 3, 4, 6, 9     |
| 3 | 1, 2, 3, 9     |
| 2 | 1, 2, 1, 3     |
| 3 | 1, 1, 1, 3     |
|   | 1, 1, 1, 1     |

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

$$= 144$$

$$\text{Required Number} = \text{L.C.M.} + 7$$

$$= 144 + 7$$

$$= 151$$

**Q4.** Minimum distance = L.C.M. of 80, 85 and 90

|    |            |
|----|------------|
| 2  | 80, 85, 90 |
| 2  | 40, 85, 45 |
| 2  | 20, 85, 45 |
| 2  | 10, 85, 45 |
| 3  | 5, 85, 45  |
| 3  | 5, 85, 15  |
| 5  | 5, 85, 5   |
| 17 | 1, 17, 1   |
|    | 1, 1, 1    |

$$\begin{aligned} \text{LCM} &= 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 17 \\ &= 720 \times 17 = 12240 \end{aligned}$$

**Q5.** Time when they change again = LCM of 48, 72 and 108

|   |             |
|---|-------------|
| 2 | 48, 72, 108 |
| 2 | 24, 36, 54  |
| 2 | 12, 18, 27  |
| 2 | 6, 9, 27    |
| 3 | 3, 9, 27    |
| 3 | 1, 3, 9     |
| 3 | 1, 1, 3     |
|   | 1, 1, 1     |

$$\begin{aligned} \text{LCM} &= 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \\ &= 16 \times 27 \\ &= 432 \end{aligned}$$

$\therefore$  Time when they change again = 432 seconds



But we need to find time after 7 am

$$432 \text{ seconds} = \frac{432}{60} \text{ minutes}$$

∴ Time = 7 minutes 12 seconds

Thus Required time = 7 am + 7 min. 12 sec.

$$= 7:07:12 \text{ am}$$

**Q7.** H.C.F. = 13

$$\text{L.C.M.} = 1989$$

$a, b$  are the two number in which  $a = 117$

$$117 \times b = 13 \times 1989$$

$$b = \frac{13 \times 1989}{117}$$

$$b = 221$$

**Q8.** H.C.F. = 744

$$a = 2232$$

$$b = 2976$$

$$\begin{aligned} \text{L.C.M.} &= \frac{a \times b}{\text{H.C.F.}} \\ &= \frac{2232 \times 2976}{744} \\ &= \frac{6642432}{744} \end{aligned}$$

$$\text{L.C.M.} = 8928$$

**Q9.**  $a \times b = 2160$

$$\text{H.C.F.} = 12$$

$$\begin{aligned} \text{L.C.M.} &= \frac{a \times b}{\text{H.C.F.}} \\ &= \frac{2160}{12} \end{aligned}$$

$$\text{L.C.M.} = 180$$

## ► Multiple Choice Questions

**Q1.** (i) 61809

$$\text{Odd digit sum : } 6 + 8 + 9 = 23$$

$$\text{even digit sum} = 1$$

$$\text{difference} = 23 - 1 = 22$$

Which is divisible by 11

**Q2.** (ii) 5, 7

**Q3.** (ii) 180

$$a \times b = 2160$$

$$\text{H.C.F.} = 12$$

$$\text{L.C.M.} = \frac{a \times b}{\text{H.C.F.}}$$

$$= \frac{2160}{12}$$

$$= 180$$

**Q4.** (ii) 117

**Q5.** (ii) 2

$$*3016$$

$$\text{Sum of digits} = * + 3 + 1 + 6 = 10 + *$$

The \* is 2 or 3

**Q6.** H.C.F. of two consecutive number like 1, 2; 2, 3 etc. is always 1. So (i) 1.

**Q7.** H.C.F. of two even consecutive number is 2 as they are divisible by 2.

**Q8.** 8

H.C.F. of two consecutive odd number is 1.



# Chapter

## 4

# Basic Geometrical Ideas

### ➔ Exercise – 4A

**Q1.** (a) Definite

(b) no

(c) one

(d) concurrent

**Q2.** (a)  $O, B, C, D, E$

(b)  $\overleftrightarrow{DE}, \overleftrightarrow{DO}, \overleftrightarrow{DB}, \overleftrightarrow{EO}$  etc

(c)  $\overrightarrow{DB}, \overrightarrow{DE}, \overrightarrow{OB}, \overrightarrow{EB}$  etc

(d)  $DE, DO, EO, OB, EB$  etc

**Q3.** (a)  $\overline{PQ}, \overline{QS}, \overline{SR}, \overline{PR}$

(b)  $\overrightarrow{PB}, \overrightarrow{QD}, \overrightarrow{SC}, \overrightarrow{RA}$

(c)  $\overline{AB}, \overline{CD}$

**Q4.** (a)  $(\overleftrightarrow{AB}, \overleftrightarrow{PS}), (\overleftrightarrow{AB}, \overleftrightarrow{RS}), (\overleftrightarrow{CD}, \overleftrightarrow{PS}), (\overleftrightarrow{CD}, \overleftrightarrow{RS})$

(b)  $A, Q, S, B$

(c)  $A, C, B$

(d)  $\overleftrightarrow{AB}, \overleftrightarrow{PS}, \overleftrightarrow{RS}$

(e)  $\overleftrightarrow{CD}, \overleftrightarrow{PQ}, \overleftrightarrow{PS}$

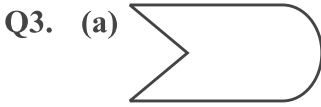
**Q5.** Do yourself

- Q6. (a) Countless  
 (b) Only one

➔ **Exercise – 4B**

- Q1. (a) closed curved  
 (b) open curve  
 (c) open curve  
 (d) closed curve

Q2. Do yourself



(c) not possible

Q4. Do yourself

➔ **Exercise – 4C**

Q1.  $\angle A$  or  $\angle DAB$ ,  $\angle B$  or  $\angle ABC$ ,  $\angle C$  or  $\angle BCD$ ,  $\angle D$  or  $\angle ADC$

- Q2. (a)  $U$   
 (b)  $S, T$   
 (c)  $B, R, Q$

Q3. Do yourself

➔ **Exercise – 4D**

- Q1. (a) Line segment  
 (b) triangle
- Q2. (a)  $\triangle ABC, \triangle ABD, \triangle ADC$   
 (b) Angles :

$\angle B, \angle C, \angle BAC, \angle BAD, \angle CAD, \angle ADB, \angle ADC$

(c) Line segments :  $\overline{AB}, \overline{AC}, \overline{BC}, \overline{AD}, \overline{BD}, \overline{DC}$

(d)  $\triangle ABC, \triangle ABD$

Q3. (a)  $P, B, A, Q, R, L$

(b) b

➔ **Exercise – 4E**

Q1. (a) 4;  $\overline{PQ}, \overline{QR}; \overline{QR}, \overline{RS}; \overline{RS}, \overline{SP}; \overline{SP}, \overline{PQ}$

(b) 2;  $\overline{PQ}, \overline{SR}; \overline{RS}, \overline{QR};$

(c) 4;  $\angle P, \angle Q; \angle Q, \angle R; \angle R, \angle S; \angle S, \angle P$

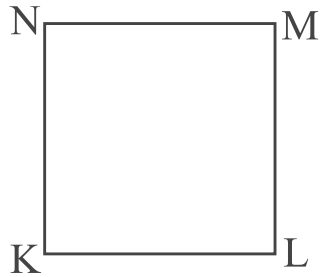
(d) 2;  $\angle P, \angle R; \angle Q, \angle S$

Q2. (a)  $\overline{KL}, \overline{NM}, \overline{KN}, \overline{LM}$

(b)  $\angle K, \angle M; \angle L, \angle N$

(c)  $\overline{PQ}, \overline{QR}; \overline{QR}, \overline{RS}$

(d)  $\angle K, \angle L, \angle L, \angle M$



➔ **Exercise – 4F**

Q1. (a) True

(b) True

Q2. Do yourself

Q3. Do yourself

Q4. (a)  $O$

(b)  $\overline{OA}, \overline{OB}, \overline{OC}$

(c)  $\overline{AC}$

(d)  $\overline{ED}$

(e)  $P, O$

(f)  $Q$

(g) Region  $AOB$  (shaded part)

(h) Segment  $ED$  (shaded part)

Q5. (a) two

(b) same centre

(c) equidistant

➔ **Multiple Choice Questions**

**Q1.** (i) one point

**Q2.** (ii) same line

**Q3.** (i) definite length

**Q4.** (i) one vertex and two arms

**Q5.** (ii) circumference

**Q6.** (i) secant

**Q7.** (ii) diameter

**Q8.** (iii) 5.2 cm

**Q9.** (iv) four



# Chapter Understanding Elementary Shapes

5

## ↳ Exercise – 5A

- Q1.** (a)  $AB = CD$   
(b)  $AB < BD$   
(c)  $AC = BD$   
(d)  $AD < AC$
- Q2.** Do yourself
- Q3.** Distance from  $D$  to  $A = 3$  units  
Distance from  $D$  to  $G = 3$  units  
Thus,  $D$  is the mid point of  $\overline{AG}$
- Q4.**  $AB$  length is  $7.5 \text{ cm} - 2 \text{ cm} = 5.5 \text{ cm}$
- Q5.** Do yourself

## ↳ Exercise – 5B

- Q1.** (a)  $180^\circ$  straight  
(b)  $92^\circ$  obtuse  
(c)  $200^\circ$  reflex  
(d)  $360^\circ$  complete  
(e)  $188^\circ$  reflex  
(f)  $149^\circ$  obtuse  
(g) 2 right angle =  $180^\circ$  straight  
(h)  $64^\circ$  acute  
(i)  $4 \times$  right angle =  $4 \times 90^\circ = 360^\circ$  Complete
- Q2.** (a) acute  
(b) obtuse

- (c) acute
- (d) straight
- (e) right
- (f) complete
- (g) acute

**Q3.** (a)  $90^\circ$

(b)  $180^\circ$  as  $90^\circ \times 2 = 180^\circ$

(c)  $270^\circ$  as  $3 \times 90 = 270^\circ$

(d)  $1\frac{1}{2}$  right angle

$$\frac{3}{2} \times 90 = 135$$

(e)  $\frac{2}{3}$  right angle

$$\frac{2}{3} \times 90 = 60$$

(f) 4 right angle

$$4 \times 90^\circ = 360^\circ$$

**Q4.** Do yourself

**Q5.** (a) A straight angle = north east

(b) A complete angle = South west

**Q6.** (a)  $\frac{1}{4}$  or one right angle

(b)  $\frac{1}{4}$  or one right angle

(c)  $\frac{1}{2}$  or two right angles

(d)  $\frac{3}{4}$  or three right angles



(e)  $\frac{3}{4}$  or three right angles

Q7. (a) At 8

(b) At 2

Q8. (a) West

(b) North

Q9. (a) Two right angles

(b) Three right angles

(c) Two right angles

(d) Two right angles

Q10. (a) At 9

(b) At 2

(c) At 7

Q11. (a) Acute angle

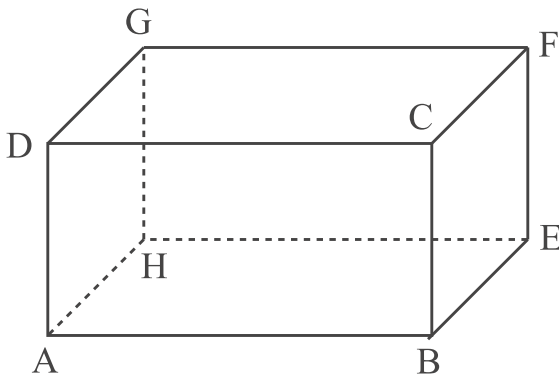
(b) Obtuse angle

(c) Obtuse angle

► **Exercise – 5C**

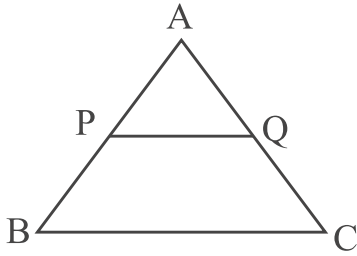
Q1. No, because they meet on producing.

Q2.



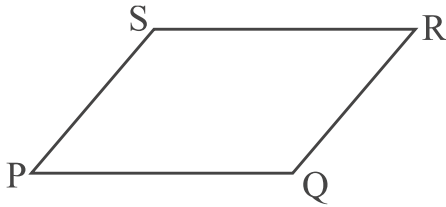
$AB, HE; BE, AH; DC, GF; AD, GH; CB, EF; AB, CD;$   
 $EH, GF$

Q3. (a)



$PQ \parallel BC$

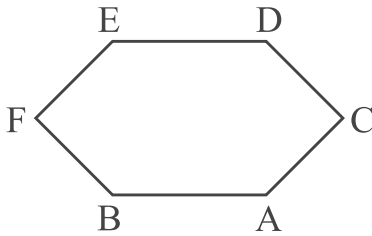
(b)



$SR \parallel PQ$

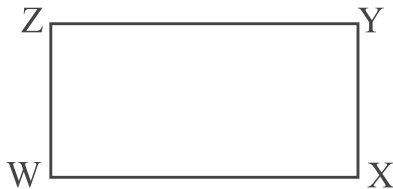
$SP \parallel RQ$

(c)

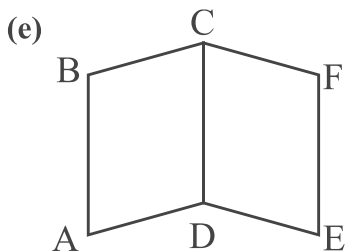


$ED \parallel AB, EF \parallel BC, FA \parallel DC$

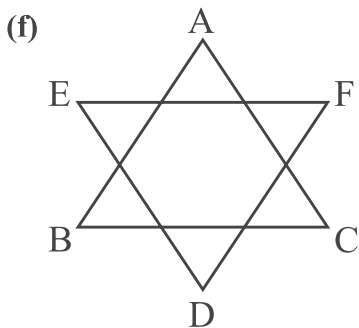
(d)



$ZY \parallel WX, ZW \parallel YX$



$CD \parallel AB; CD \parallel EF; BC \parallel AD; CE \parallel DF; AB \parallel EF$



$AB \parallel FD, AC \parallel ED, BC \parallel EF$

**Q4.** (a)  $L$

(b)  $H, I$

**Q5.**  $\angle PAY = 90^\circ$

### ► Exercise – 5D

**Q1. (a) Triangle :** It is a set of 3 non-collinear point joint each other.

**(b) Scalene triangle :** No side is equal in length.

**(c) Isosceles triangle :** Any two sides are equal in length.

**(d) Equilateral triangle :** All the three sides are equal in length.

**(e) Acute triangle :** A triangle whose angle are (measured less than  $90^\circ$ ) are acute triangle.

**(f) Right triangle :** A triangle whose angle is  $90^\circ$  is called right angle triangle.

**(g) Obtuse triangle :** A triangle whose one of its angle is obtuse are called obtuse triangle.

- Q2.** (a) isosceles  
(b) isosceles  
(c) scalene  
(d) equilateral  
(e) isosceles
- Q3.** (a) right angled  
(b) acute angled  
(c) right angled  
(d) obtuse angled  
(e) acute angled

**Q4.** Sum of the three angles of triangle =  $180^\circ$

$$\text{So, } 60 + 65 + \angle 3^{\text{rd}} = 180^\circ$$

$$\angle 3^{\text{rd}} = 180 - 125 = 55^\circ$$

so, third angle is  $55^\circ$ .

**Q5.** Let the ratio be  $x$ .

So angles are  $2x, 3x, 4x$

$$2x + 3x + 4x = 180^\circ \quad (\text{sum of angle of triangle})$$

$$9x = 180^\circ$$

$$x = 20^\circ$$

So, angles are :

$$2 \times 20 = 40^\circ$$

$$3 \times 20 = 60^\circ$$

$$4 \times 20 = 80^\circ$$

**Q6.** In a right angle one angle is  $90^\circ$  and another is  $40^\circ$ .

$$\text{So, } 90 + 40 + 3^{\text{rd}} = 180^\circ$$

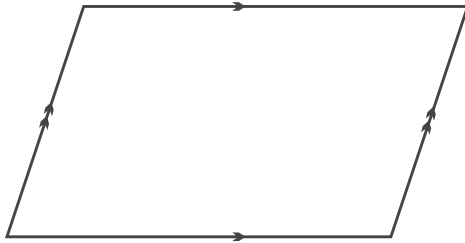
$$3^{\text{rd}} = 180^\circ - 130^\circ$$

$$3\text{rd} = 50^\circ$$

So, the other acute angle =  $50^\circ$

➔ **Exercise – 5E**

**Q1. (a)**



Parallelogram

(b) square 

(c) rectangle 

(d) trapezium 

(e) kite 

**Q2. (a)** rhombus

(b) square

**Q3. (a)** Triangle

(b) Quadrilateral

(c) 6

(d) 5

(e) Heptagon

(f) Octagon

**Q4.** Let ratio be  $x$  so  $3x, 4x$

$$2(1 + b) = 56$$

$$2(7x) = 56 \quad \Rightarrow \quad x = 4$$

So, sides be  $3 \times 4 = 12$  cm

$$4 \times 4 = 16$$
 cm

➔ **Exercise – 5F**

**Q1.** 6, 12, 8

**Q2. (a)** cuboid

**(b)** cuboid

**(c)** cuboid

**(d)** cylinder

**(e)** sphere

**Q3.** 5, 8, 5

**Q4.** 5, 9, 6

➔ **Multiple Choice Questions**

**Q1.** (iv) Six sides

**Q2.** (i)  $90^\circ$

**Q3.** (ii) an obtuse angle

**Q4.** (i) 60 seconds

**Q5.** (ii)  $180^\circ$

**Q6.** (i) 3

**Q7.** (iii) a scalene triangle

**Q8.** (i) trapezium

**Q9.** (i) complete angle

**Q10.** (ii) East



# Chapter

## 6

# Integers

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### ► Exercise – 6A

- Q1.** (a) decrease of 8  
(b) A profit of ₹ 7  
(c) A withdrawal of ₹ 100  
(d) 10 km below sea level
- Q2.** (a) +600  
(b) -9  
(c) -3  
(d) -300
- Q3.** Do yourself
- Q4.** (a)  $0 > -2$   
(b)  $6 > -7$   
(c)  $-5 < -3$   
(d)  $-16 < 8$   
(e)  $-365 > -913$
- Q5.** (a) -6  
(b) -2, -1, 0, 1, 2  
(c) -1, -2, -3, -4
- Q6.** (a) -7, -2, 0, 5, 8  
(b) -106, -81, -16, -2, 0, 16, 21
- Q7.** (a) 36, 0, -5, -71, -81

(b)  $413, 102, -7, -365, -515$

**Q8.** (a)  $>$

(b)  $<$

(c)  $<$

(d)  $<$

**Q9.** Draw number line yourself

(a) 10

(b)  $-5$

(c) 3

**Q10.** (a) True

(b) False;  $-100$  is to the left of  $-50$  on a number line.

(c) False; Greatest negative integer is  $-1$ .

(d) False;  $-26$  is smaller than  $-25$ .

► **Exercise – 6B**

**Q1.** Do yourself

**Q2.** (a)  $-13 - 18 = -31$

(b)  $-250 + 150 = -100$

(c)  $-380 - 270 = -650$

(d)  $-10 + 19 = 9$

(e)  $-217 - 100 = -317$

**Q3.** (a)  $-10 + 92 + 84 - 15$

$$= 82 + 84 - 15$$

$$= 151$$

(b)  $-50 + (-200) + 300$

$$= -50 - 200 + 300$$

$$= -250 + 300$$

$$= +50$$

(c)  $-3057 + 199$



$$= -2858$$

**(d)**  $-18 + 25 + (-37)$

$$= -18 + 25 - 37$$

$$= 7 - 37$$

$$= -30$$

**(e)**  $-51 + (-203) + 36 + (-28)$

$$= -51 - 203 + 36 - 28$$

$$= -254 + 36 - 28$$

$$= -218 - 28$$

$$= -246$$

**Q4. (a)** 57

**(b)**  $-183$

**(c)** 0

**(d)** 1001

**(e)**  $-2054$

**Q5. (a)**  $-7 - 9 + 4 + 16$

$$= -16 + 20$$

$$= +4$$

**(b)**  $37 - 2 - 65 - 8$

$$= 35 - 65 - 8$$

$$= -30 - 8$$

$$= -38$$

**(c)**  $-9 + 4 - 6 + 3$

$$= -5 - 6 + 3$$

$$= -11 + 3$$

$$= -8$$

**(d)**  $30 - 23 - 63 + 55$

$$= 7 - 63 + 55$$

$$= -56 + 55$$

$$= -1$$

$$(e) 1056 - 798 - 38 + 44 - 1$$

$$= 220 + 44 - 1$$

$$= 263$$

**Q6. (a)**  $-499, -501$

➔ **Exercise – 6C**

**Q1. (a)**  $23 + 12 = 35$

**(b)**  $-15 + 18 = +3$

**(c)**  $35 - 20 = 15$

**(d)**  $72 - 90 = -18$

**(e)**  $-32 + 40 = 8$

**(f)**  $-20 - 13 = -33$

**Q2. (a)**  $(-3) + (-6)$  \_\_\_\_\_  $(-3) - (-6)$

$$-3 - 6$$
 \_\_\_\_\_  $-3 + 6$

$$-9$$
 <  $3$

**(b)**  $-25 + 42$  \_\_\_\_\_  $-42 + 25$

$$+17$$
 <  $-17$

**(c)**  $45 + 11$  \_\_\_\_\_  $57 - 4$

$$56$$
 >  $53$

**(d)**  $-21 + 10$  \_\_\_\_\_  $-31 - 11$

$$-11$$
 >  $-41$

**Q3. (a)** 9

**(b)**  $(-15)$

**(c)** 0

**(d)**  $-8$

**(e)**  $+5$

**Q4. (a)**  $5128 - (-2459) = 7587$

$$\begin{aligned} \text{(b)} \quad & -687 - (-1040) \\ & = -687 + 1040 = 353 \end{aligned}$$

$$\text{(c)} \quad -58 - 347 = -385$$

$$\begin{aligned} \text{(d)} \quad & -680 - (-954) \\ & = -680 + 954 = 2743 \end{aligned}$$

$$\text{Q5. (a)} \quad 50 + 40 + 2 = 92$$

$$\text{(b)} \quad -7 - 8 - 90 = -105$$

$$\begin{aligned} \text{(c)} \quad & -13 + 32 - 8 - 1 \\ & = 19 - 8 - 1 = 10 \end{aligned}$$

$$\begin{aligned} \text{(d)} \quad & -7 - 8 + 25 = -15 + 25 \\ & = 10 \end{aligned}$$

$$\text{Q6.} \quad 170 + x = -13$$

$$\begin{aligned} x &= -13 - 170 \\ &= -183 \end{aligned}$$

### ► Multiple Choice Questions

Q1. (iii) north

Q2. (ii) always positive

Q3. (i)  $4 - 4 + 4 - 4 + 4 - 4 = 0$

Q4. (i)  $-4 + 1 = -3$

Q5. (i)  $-2 - 1 = -3$

Q6. (ii)  $|-16| - |8 - 2| = 16 - 6 = 10$

Q7. (iii) neither negative nor positive

Q8. (ii)  $(-12) - (-6) = -12 + 6 = -6$

Q9. (iii)

$$a + b = -250$$

$$a = 300$$

$$b = -250 + (-300) = -550$$

Q10. (iii)



# Chapter

## 7

# Fractions

### ↳ Exercise – 7A

**Q1.** (a)  $\frac{2}{4}$

(b)  $\frac{1}{4}$

(c)  $\frac{1}{2}$

**Q2.** Do yourself

**Q3.** Since, 1 day = 24 hours

$$\therefore \text{the fraction of 8 hours} = \frac{8}{24} = \frac{1}{3}$$

**Q4.** Since, 1 hour = 60 minutes

$$\therefore \text{the fraction of 40 minutes} = \frac{40}{60} = \frac{2}{3}$$

**Q5.** Do yourself

**Q6.** No of pencils with Neelam = 25 pencils

$$\text{No. of pencils given} = \frac{4}{5} \text{ of } 25$$

$$= \frac{4}{5} \times 25$$

$$= 20$$

Meena get 20 pencils

$$\text{Penciles left with Neelam} = 25 - 20 = 5$$

**Q7.**  $1 \text{ second} = \frac{1}{60} \text{ minutes}$

$$20 \text{ seconds} = \frac{1}{60} \times 20 = \frac{1}{3} \text{ minutes}$$

**Q8.** Riya has 24 bananas.

**(a)** Kruti get  $= \frac{1}{2} \times 24 = 12$  bananas

**(b)** Manu get  $= \frac{1}{4} \times 24 = 6$  bananas

**(c)** Riya kept  $= 24 - 12 - 6 = 6$  bananas

**Q9. (a)** There are 24 apples

Use  $\frac{1}{4}$  of 24

$$= \frac{1}{4} \times 24 = 6 \text{ apples}$$

**(b)** left apples  $= 24 - 6 = 18$

**Q10. (a)**  $\frac{3}{4} \times 16 = 12$

**(b)**  $\frac{2}{3} \times 36 = 24$

**(c)**  $\frac{2}{8} \times 32 = 8$

### ➔ Exercise – 7B

**Q1.**  $\frac{8}{7}, \frac{9}{10}, \frac{10}{7}, \frac{11}{7}, \frac{12}{7}, \frac{13}{7}$

**Q2.**  $\frac{11}{2}, \frac{11}{3}, \frac{11}{4}, \frac{11}{5}, \frac{11}{6}, \frac{11}{7}$

**Q3.** Do yourself

**Q4. (a)**  $\frac{23}{5} = 4\frac{3}{5}$

$$\begin{array}{r} 4 \\ 5 \overline{)23} \\ \underline{20} \\ 3 \end{array}$$

$$(b) \frac{37}{6} = 6\frac{1}{6}$$

$$\begin{array}{r} 6 \\ 6 \overline{)37} \\ \underline{36} \\ 1 \end{array}$$

$$(c) \frac{50}{7} = 7\frac{1}{7}$$

$$\begin{array}{r} 7 \\ 7 \overline{)50} \\ \underline{49} \\ 1 \end{array}$$

$$(d) \frac{17}{3} = 5\frac{2}{3}$$

$$\begin{array}{r} 5 \\ 3 \overline{)17} \\ \underline{15} \\ 2 \end{array}$$

$$(e) \frac{11}{3} = 3\frac{2}{3}$$

$$\begin{array}{r} 3 \\ 3 \overline{)11} \\ \underline{9} \\ 2 \end{array}$$

$$(f) \frac{27}{5} = 5\frac{2}{5}$$

$$\begin{array}{r} 5 \\ 5 \overline{)27} \\ \underline{25} \\ 2 \end{array}$$

$$Q5. (a) \frac{5 \times 3 + 4}{5} = \frac{19}{5}$$

$$(b) \frac{8 \times 6 + 5}{8} = \frac{53}{8}$$

$$(c) \frac{9 \times 5 + 7}{9} = \frac{52}{9}$$

$$(d) \frac{4 \times 2 + 3}{4} = \frac{11}{4}$$

$$(e) \frac{9 \times 7 + 1}{9} = \frac{64}{9}$$

$$(f) \frac{7 \times 5 + 3}{7} = \frac{38}{7}$$

### ► Exercise – 7C

$$Q1. (a) \frac{7 \times 2}{9 \times 2}, \frac{7 \times 3}{9 \times 3}, \frac{7 \times 4}{9 \times 4}, \frac{7 \times 5}{9 \times 5}, \frac{7 \times 6}{9 \times 6}$$

$$= \frac{14}{18}, \frac{21}{27}, \frac{28}{36}, \frac{35}{45}, \frac{42}{54}$$

$$(b) \frac{6 \times 2}{11 \times 2}, \frac{6 \times 3}{11 \times 3}, \frac{6 \times 4}{11 \times 4}, \frac{6 \times 5}{11 \times 5}, \frac{6 \times 6}{11 \times 6}$$

$$= \frac{18}{22}, \frac{18}{33}, \frac{24}{44}, \frac{30}{55}, \frac{36}{66}$$

$$(c) \frac{3 \times 2}{7 \times 2}, \frac{3 \times 3}{7 \times 3}, \frac{3 \times 4}{7 \times 4}, \frac{3 \times 5}{7 \times 5}, \frac{3 \times 6}{7 \times 6}$$

$$= \frac{6}{14}, \frac{9}{21}, \frac{12}{28}, \frac{15}{35}, \frac{18}{42}$$

$$(d) \frac{5 \times 2}{8 \times 2}, \frac{5 \times 3}{8 \times 3}, \frac{5 \times 4}{8 \times 4}, \frac{5 \times 5}{8 \times 5}, \frac{5 \times 6}{8 \times 6}$$

$$= \frac{10}{16}, \frac{15}{24}, \frac{20}{32}, \frac{25}{40}, \frac{30}{48}$$

$$(e) \frac{2 \times 2}{3 \times 2}, \frac{2 \times 3}{3 \times 3}, \frac{2 \times 4}{3 \times 4}, \frac{2 \times 5}{3 \times 5}, \frac{2 \times 6}{3 \times 6}$$

$$= \frac{4}{6}, \frac{6}{9}, \frac{8}{12}, \frac{10}{15}, \frac{12}{18}$$

**Q2. (a)**  $5 \times 54 = 30 \times 9$

$$270 = 270$$

Yes

**(b)**  $3 \times 50 = 12 \times 10$

$$150 \neq 120$$

No

**(c)**  $7 \times 11 = 5 \times 13$

$$77 \neq 65$$

No

**Q3. (a)**  $\frac{48 \div 2}{60 \div 2} = \frac{24 \div 2}{30 \div 2}$

$$= \frac{12 \div 3}{15 \div 3} = \frac{4}{5}$$

**(b)**  $\frac{150 \div 2}{60 \div 2} = \frac{75 \div 3}{30 \div 3}$

$$= \frac{25 \div 5}{10 \div 5} = \frac{5}{2}$$

**(c)**  $\frac{7 \div 7}{28 \div 7} = \frac{1}{4}$



$$\begin{aligned} \text{(d)} \quad \frac{12 \div 2}{52 \div 2} &= \frac{6 \div 2}{26 \div 2} \\ &= \frac{3}{13} \end{aligned}$$

$$\begin{aligned} \text{(e)} \quad \frac{84 \div 2}{98 \div 2} &= \frac{42 \div 7}{49 \div 7} \\ &= \frac{6}{7} \end{aligned}$$

$$\text{Q4. (a)} \quad \frac{3 \times 6}{5 \times 6} = \frac{18}{30}$$

$$\text{(b)} \quad \frac{3 \times 8}{5 \times 8} = \frac{24}{40}$$

$$\text{Q5. (a)} \quad \frac{5 \times 6}{9 \times 6} = \frac{30}{54}$$

$$\text{(b)} \quad \frac{5 \times 7}{9 \times 7} = \frac{35}{63}$$

$$\text{Q6. (a)} \quad \frac{36 \div 4}{48 \div 4} = \frac{9}{12}$$

$$\text{(b)} \quad \frac{36 \div 12}{48 \div 12} = \frac{3}{4}$$

$$\text{Q7. (a)} \quad \frac{18 \div 2}{24 \div 2} = \frac{9 \div 3}{12 \div 3} = \frac{\boxed{3}}{4}$$

$$\text{(b)} \quad \frac{45 \div 3}{60 \div 3} = \frac{15}{\boxed{20}}$$

$$\text{(c)} \quad \frac{3 \times 4}{5 \times 4} = \frac{\boxed{12}}{20}$$

$$\text{(d)} \quad \frac{5 \times 2}{8 \times 2} = \frac{10}{\boxed{16}}$$

$$\text{(e)} \quad \frac{2 \times 4}{7 \times 4} = \frac{8}{\boxed{28}}$$

### ➔ Exercise – 7D

Q1. (a)  $\frac{3}{7} < \frac{6}{7}$

(b)  $\frac{9}{10} > \frac{7}{10}$

(c)  $\frac{8}{9} > \frac{5}{9}$

(d)  $\frac{8}{11} > \frac{8}{13}$

(e)  $\frac{5}{12} < \frac{5}{8}$

(f)  $\frac{11}{14} > \frac{11}{15}$

Q2. (a)  $\frac{11 \times 5}{12 \times 5} = \frac{55}{60}$       &       $\frac{13 \times 4}{15 \times 4} = \frac{52}{60}$

$\therefore \frac{55}{60} > \frac{52}{60}$

So,  $\frac{11}{12} > \frac{13}{15}$

(b)  $\frac{4 \times 4}{5 \times 4} = \frac{16}{20}$       &       $\frac{7 \times 2}{10 \times 2} = \frac{14}{20}$

$\therefore \frac{16}{20} > \frac{14}{20}$

So,  $\frac{4}{5} > \frac{7}{10}$

(c)  $\frac{4 \times 6}{9 \times 6} = \frac{24}{54}$       &       $\frac{5 \times 9}{6 \times 9} = \frac{45}{54}$

$\therefore \frac{24}{54} < \frac{45}{54}$

So,  $\frac{4}{9} < \frac{5}{6}$

$$(d) \frac{3 \times 6}{4 \times 6} = \frac{18}{24} \quad \& \quad \frac{5 \times 4}{6 \times 4} = \frac{20}{24}$$

$$\therefore \frac{18}{24} < \frac{20}{24}$$

$$\text{So, } \frac{3}{4} < \frac{5}{6}$$

$$(e) \frac{5 \times 11}{6 \times 11} = \frac{55}{66} \quad \& \quad \frac{9 \times 6}{11 \times 6} = \frac{54}{66}$$

$$\therefore \frac{55}{66} > \frac{54}{66}$$

$$\text{So, } \frac{5}{6} > \frac{9}{11}$$

$$(f) \frac{6 \times 4}{13 \times 4} = \frac{24}{52} \quad \& \quad \frac{3 \times 13}{4 \times 13} = \frac{39}{52}$$

$$\therefore \frac{24}{52} < \frac{39}{52}$$

$$\text{So, } \frac{6}{13} < \frac{3}{4}$$

$$\text{Q3. (a) } \frac{3 \times 8}{4 \times 8}, \frac{7 \times 4}{8 \times 4}, \frac{11 \times 2}{16 \times 2}, \frac{23 \times 1}{32 \times 1}$$

$$\Rightarrow \frac{24}{32}, \frac{28}{32}, \frac{22}{32}, \frac{23}{32}$$

$$\Rightarrow \frac{22}{32} < \frac{23}{32} < \frac{24}{32} < \frac{28}{32}$$

$$\therefore \frac{11}{16} < \frac{23}{32} < \frac{3}{4} < \frac{7}{8}$$

$$(b) \frac{1 \times 12}{2 \times 12}, \frac{3 \times 6}{4 \times 6}, \frac{5 \times 4}{6 \times 4}, \frac{7 \times 3}{8 \times 3}$$

$$\frac{12}{24}, \frac{18}{24}, \frac{20}{24}, \frac{21}{24}$$

$$\frac{12}{24} < \frac{18}{24} < \frac{20}{24} < \frac{21}{24}$$

$$\frac{1}{2} < \frac{3}{4}, \frac{5}{6} < \frac{7}{8}$$

**Q4. (a)**  $\frac{3}{7} > \frac{3}{11} > \frac{3}{13} > \frac{3}{17}$

**(b)**  $\frac{5 \times 6}{7 \times 6}, \frac{9 \times 3}{14 \times 3}, \frac{17 \times 2}{21 \times 2}, \frac{31 \times 1}{42 \times 1}$

$$\frac{30}{42}, \frac{27}{42}, \frac{34}{42}, \frac{31}{42}$$

$$\frac{34}{42} > \frac{31}{42} > \frac{30}{42} > \frac{27}{42}$$

$$\frac{17}{21} > \frac{31}{42} > \frac{5}{7} > \frac{9}{14}$$

**Q5.** Rafiq exercised for =  $\frac{2}{3}$  hour

$$\frac{2 \times 4}{3 \times 4} = \frac{8}{12}$$

Rohit exercised for =  $\frac{3 \times 3}{4 \times 3} = \frac{9}{12}$

$$\frac{8}{12} < \frac{9}{12}$$

Thus, Rohit exercised for longer time.

**Q6.** In class A, 20 passed out of 25, *i.e.*,  $\frac{20}{25} = \frac{4}{5}$

In class B, 24 passed out of 30, *i.e.*,  $\frac{24}{30} = \frac{4}{5}$

Hence, each class have same fraction of students getting first class.

➔ **Exercise – 7E**

**Q1. (a)** L.C.M. of 3 and 7 is 21

$$\begin{aligned}\therefore \frac{5}{7} + \frac{1}{3} &= \frac{5 \times 3 + 7 \times 1}{21} \\ &= \frac{15 + 7}{21} \\ &= \frac{22}{21} \\ &= 1 \frac{1}{21}\end{aligned}$$

**(b)** L.C.M. of 9 and 7 is 63

$$\begin{aligned}\therefore \frac{4}{9} + \frac{2}{7} &= \frac{4 \times 7 + 2 \times 9}{63} \\ &= \frac{28 + 18}{63} \\ &= \frac{46}{63}\end{aligned}$$

**(c)** L.C.M. of 10 and 15 is 30

$$\begin{aligned}\therefore \frac{3}{10} + \frac{7}{15} &= \frac{3 \times 3 + 7 \times 2}{30} \\ &= \frac{9 + 14}{30} \\ &= \frac{23}{30}\end{aligned}$$

**(d)** L.C.M. of 3 and 7 is 21

$$\begin{aligned}\therefore \frac{2}{3} + \frac{1}{7} &= \frac{2 \times 7 + 1 \times 3}{21} \\ &= \frac{14 + 3}{21} \\ &= \frac{17}{21}\end{aligned}$$

(e) L.C.M. of 3, 4 and 2 is 12

$$\begin{aligned}\therefore \frac{2}{3} + \frac{3}{4} + \frac{1}{2} &= \frac{2 \times 4 + 3 \times 3 + 1 \times 6}{12} \\ &= \frac{6 + 9 + 6}{12} \\ &= \frac{21}{12} \\ &= 1 \frac{11}{12}\end{aligned}$$

(f) L.C.M. of 2, 3 and 6 is 6

$$\begin{aligned}\therefore \frac{1}{2} + \frac{1}{3} + \frac{1}{6} &= \frac{1 \times 3 + 1 \times 2 + 1 \times 1}{6} \\ &= \frac{3 + 2 + 1}{6} \\ &= \frac{6}{6} \\ &= 1\end{aligned}$$

(g) L.C.M. of 3 and 2 is 6

$$\begin{aligned}\therefore \frac{4}{3} - \frac{1}{2} &= \frac{4 \times 2 - 1 \times 3}{6} \\ &= \frac{8 - 3}{6} \\ &= \frac{5}{6}\end{aligned}$$

(h) L.C.M. of 5 and 5 is 5

$$\begin{aligned}\therefore \frac{16}{5} - \frac{7}{5} &= \frac{16 - 7}{5} \\ &= \frac{9}{5} = 1 \frac{4}{5}\end{aligned}$$

(i)  $\frac{14}{3} + \frac{13}{4}$

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

$$\begin{aligned}\therefore \frac{14}{3} + \frac{13}{4} &= \frac{14 \times 4 + 13 \times 3}{12} \\ &= \frac{56 + 39}{12} \\ &= \frac{95}{12} \\ &= 7\frac{11}{12}\end{aligned}$$

**Q2.** Total distance between school and house =  $\frac{9}{10}$  km

Distance covered by bus =  $\frac{1}{2}$  km

$$\begin{aligned}\text{Remaining distance} &= \frac{9}{10} - \frac{1}{2} \\ &= \frac{9 \times 1 - 1 \times 5}{10} \\ &= \frac{9 - 5}{10} \\ &= \frac{4}{10} \\ &= \frac{2}{5} \text{ km}\end{aligned}$$

Therefore distance covered by walking is  $\frac{2}{5}$  km.

**Q3.** Total length of wire =  $2\frac{3}{4} = \frac{11}{4}$

Length of one piece =  $\frac{5}{8}$

Length of other piece  $x + \frac{5}{8} = \frac{11}{4}$

$$\begin{aligned}
 x &= \frac{11}{4} - \frac{5}{8} \\
 &= \frac{11 \times 2 - 5 \times 1}{8} = \frac{22 - 5}{8} \\
 &= \frac{17}{8} = 2\frac{1}{8} \text{ m}
 \end{aligned}$$

**Q4.** Time taken by Jaidev =  $2\frac{1}{5}$  minutes

$$= \frac{11}{5} \text{ minutes}$$

Time taken by Rahul =  $\frac{7}{4}$  minutes

$$\begin{aligned}
 \text{Difference} &= \frac{11}{5} - \frac{7}{4} = \frac{11 \times 4 - 7 \times 5}{20} \\
 &= \frac{44 - 35}{20} = \frac{9}{20} \text{ minutes}
 \end{aligned}$$

Thus, Rahul takes less time which is  $\frac{9}{20}$  minutes.

**Q5. (a)**  $\square = \frac{1}{4} + \frac{5}{8}$

$$\square = \frac{1 \times 2 + 5 \times 1}{8} = \frac{2 + 5}{8} = \frac{7}{8}$$

**(b)**  $\square = \frac{1}{2} + \frac{1}{5}$

$$\square = \frac{1 \times 5 + 1 \times 2}{10} = \frac{5 + 2}{10} = \frac{7}{10}$$

**(c)**  $\square = \frac{1}{2} - \frac{1}{6}$

$$\square = \frac{1 \times 3 - 1 \times 1}{6} = \frac{3 - 1}{6} = \frac{2}{6} = \frac{1}{3}$$



**Q6.** Piece of cake Sarita got =  $1\frac{1}{2} = \frac{3}{2}$

Piece of cake Najma got =  $1\frac{1}{3} = \frac{4}{3}$

Total amount =  $\frac{3}{2} + \frac{4}{3}$

$$\frac{3 \times 3 + 4 \times 2}{6} = \frac{9 + 8}{6}$$

$$= \frac{17}{6} = 2\frac{5}{6}$$

➔ **Multiple Choice Questions**

**Q1.** (ii)  $\frac{3}{19}$

$$\frac{36}{228}$$

So,  $\frac{36 \div 12}{228 \div 12} = \frac{3}{19}$

|   |             |
|---|-------------|
| 2 | 36, 24, 228 |
| 2 | 18, 12, 114 |
| 3 | 9, 3, 57    |
|   | 3, 19, 19   |

H.C.F. =  $2 \times 2 \times 3 = 12$

So,  $\frac{3}{19}$

**Q2.** (i)  $\frac{3}{4}$

$$\frac{36}{48}$$

|   |    |
|---|----|
| 2 | 36 |
| 2 | 18 |
| 3 | 9  |
|   | 3  |

|   |    |
|---|----|
| 2 | 48 |
| 2 | 24 |
| 2 | 12 |
| 2 | 6  |
|   | 3  |

$$\text{H.C.F.} = 2 \times 2 \times 3$$

$$= 12$$

$$\text{as } \frac{36 \div 12}{48 \div 12} = \frac{3}{4}$$

$$\text{So, } \frac{3}{4}$$

**Q3.** (i)  $\frac{15}{20}$

$$\frac{3}{4} \text{ denominator } 20$$

$$20 \div 4 = 5$$

$$\frac{3 \times 5}{4 \times 5} = \frac{15}{20}$$

**Q4.** (i)  $\frac{3}{4}$

Equivalent fraction of  $\frac{45}{60}$  with numerator 3

$$45 \div 3 = 15$$

$$\frac{45 \div 15}{60 \div 15} = \frac{3}{4}$$

**Q5.** (iii)  $\frac{8}{7}$

**Q6.** (ii)  $\frac{3}{5}$

Total cake is divided into five part. Kruti and Agrim ate  
1 each piece. *i.e.*,  $= \frac{2}{5}$

$$\text{Left one is } \frac{5}{5} - \frac{2}{5} = \frac{3}{5}$$

**Q7.** (iii)  $\frac{7}{12}$

$$\frac{3}{4}, \frac{5}{6}, \frac{7}{12}, \frac{2}{3}$$

L.C.M. = 12

$$\frac{3 \times 3}{4 \times 3} = \frac{9}{12}, \frac{5 \times 2}{6 \times 2} = \frac{10}{12}, \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$$

So,  $\frac{9}{12}, \frac{10}{12}, \frac{7}{12}, \frac{8}{12}$

as  $\frac{7}{12}$  is the smallest one.

**Q8.** (ii)  $1\frac{1}{4}$

$$2\frac{1}{4} \Rightarrow \frac{9}{4},$$

$$3\frac{1}{2} = \frac{6+1}{2} = \frac{7}{2}$$

L.C.M. = 4

$$\frac{9}{4}, \frac{7 \times 2}{2 \times 2} = \frac{14}{4}$$

$$\frac{14}{4} - \frac{9}{4} = \frac{5}{4}$$

(L.C.M. = 4)

or  $1\frac{1}{4}$

|   |      |
|---|------|
| 2 | 4, 2 |
|   | 2, 1 |



# Chapter

## 8

# Decimals

### Exercise – 8A

Q1. (a)  $\frac{137}{1000} \Rightarrow 0.137$

(b)  $\frac{509}{100} \Rightarrow 5.09$

(c)  $\frac{83}{1000} \Rightarrow 0.083$

(d)  $\frac{1508}{1000} \Rightarrow 1.508$

Q2. (a)  $0.007 = \frac{7}{1000}$

(b)  $0.069 = \frac{69}{1000}$

(c)  $5.307 = \frac{5307}{1000}$

(d)  $27.834 = \frac{27834}{1000}$

Q3. (a) 5.680

$$\Rightarrow (5 \times 1) + \left(6 \times \frac{1}{10}\right) + \left(8 \times \frac{1}{100}\right)$$

(b) 218.003

$$\Rightarrow (2 \times 100) + (1 \times 10) + (8 \times 1) + \left(3 \times \frac{1}{1000}\right)$$

(c) 3.326

$$\Rightarrow (3 \times 1) + \left(3 \times \frac{1}{10}\right) + \left(2 \times \frac{1}{100}\right) + \left(\frac{6 \times 1}{1000}\right)$$

(d) 235.168

$$\Rightarrow (2 \times 100) + (3 \times 10) + (5 \times 1) + \left(\frac{1 \times 1}{10}\right) + \left(\frac{6 \times 1}{100}\right) + \left(8 \times \frac{1}{1000}\right)$$

**Q4. (a)** 275.03 : Two hundred seventy five point zero three

**(b)** 0.31 : Zero point three one

**(c)** 8.006 : Eight point zero zero six

**(d)** 0.568 : Zero point five six eight

**Q5. (a)** 4.5

**(b)** 11.03

**(c)** 0.335

**(d)** 36.05

**(e)** 0.007

**(f)** 611.123

**Q6. (a)**  $300 + 80 + \frac{6}{10} + \frac{5}{1000}$  or 380.605

**(b)**  $500 + 20 + 7 + \frac{5}{100} + \frac{3}{1000}$  or 527.053

**Q7.**

|            | Hundred | Tens | Ones | Tenths | Hundred<br>ths | Thousand<br>ths |
|------------|---------|------|------|--------|----------------|-----------------|
| <b>(a)</b> |         |      | 0    | 3      |                |                 |
| <b>(b)</b> | 2       | 0    | 5    | 9      |                |                 |
| <b>(c)</b> | 1       | 4    | 8    | 3      | 2              |                 |
| <b>(d)</b> | 2       | 0    | 0    | 8      | 1              | 2               |

- Q8.** (a)  $265 + 0.1 = 265.1$   
(b)  $0.7 + 0.06 + 0.004 = 0.764$   
(c)  $725 + 0.09 = 725.09$   
(d)  $29 + 0.4 + 0.01 = 29.41$

➔ **Exercise – 8B**

- Q1.** (a) 0.75, 0.07  
(b) 16.03, 16.003  
(c) 35.004, 35.400
- Q2.** (a) 6.4, 52.13, 0.064  
6.400, 52.130, 0.064  
(b) 0.5, 4.826, 1.250, 3.4  
0.500, 4.825, 1.250, 3.400
- Q3.** (a)  $73.12 > 65.24$   
(b)  $6.507 < 6.57$   
(c)  $7.24 < 7.32$   
(d)  $11.05 < 11.005$   
(e)  $2.74 > 2.704$   
(f)  $0.86 < 1.06$
- Q4.** (a) 4.05, 4.58, 4.7, 6.03, 6.1  
(b) 0.05, 0.5, 5.05, 55.5  
(c) 5.04, 5.3, 5.4, 5.43  
(d) 0.44, 4.004, 4.044, 4.4, 4.404
- Q5.** (a) 62.02, 7.62, 7.062, 6.22, 6.2  
(b) 40.4, 40.04, 4.4, 4.04, 4.004  
(c) 8.3, 3.83, 3.8, 3.38, 3.03, 3.008  
(d) 77.7, 77.07, 7.77, 7.077, 7.007

➔ **Exercise – 8C**

- Q1.** (a)  $0.8 = \frac{8}{10}$

$$(b) 0.09 = \frac{9}{100}$$

$$(c) 0.15 = \frac{15}{100}$$

$$(d) 0.54 = \frac{54}{100}$$

$$(e) 0.125 = \frac{125}{1000}$$

$$Q2. (a) 5.5 = \frac{55}{10} = \frac{11}{2} = 5\frac{1}{2}$$

$$(b) 10.4 = \frac{104}{10} = \frac{52}{5} = 10\frac{2}{5}$$

$$(c) 9.36 = \frac{936}{100} = \frac{468}{50} = \frac{234}{25} = 9\frac{10}{25}$$

$$(d) 6.004 = \frac{6004}{1000} = \frac{3002}{500} = \frac{1501}{250} \text{ or } 6\frac{1}{250}$$

$$(e) 2.108 = \frac{2108}{1000} = \frac{527}{250} = 2\frac{27}{250}$$

$$Q3. (a) \frac{33}{10} = 3.3$$

$$(b) \frac{147}{100} = 1.47$$

$$(c) \frac{6523}{1000} = 6.523$$

$$(d) \frac{25}{4} = 6.25$$

$$(e) 3\frac{2}{5} \Rightarrow \frac{17}{5} = 3.40$$

$$\begin{array}{r} 5 \overline{) 17} \quad (3.4 \\ \underline{15} \\ 20 \\ \underline{20} \\ \hline \times \end{array}$$

$$(f) 12\frac{2}{3} = \frac{96+3}{8} = \frac{99}{8}$$

$$\begin{array}{r} 8 \overline{) 99} \quad (12.375 \\ \underline{8} \\ 19 \\ \underline{16} \\ 30 \\ \underline{24} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ \times \end{array}$$

12.375 Ans.

$$(g) \frac{19}{20}$$

$$\begin{array}{r} 20 \overline{) 190} \quad (0.95 \\ \underline{180} \\ 100 \\ \underline{100} \\ \times \end{array}$$

0.95 Ans.

$$(h) \frac{6}{25}$$

$$\begin{array}{r} 25 \overline{) 60} \quad (0.24 \\ \underline{50} \\ 100 \\ \underline{100} \\ \times \end{array}$$



$$(i) 15\frac{17}{40} \Rightarrow \frac{617}{40}$$

$$\begin{array}{r} 40 \overline{) 617} \quad (15.425 \\ \underline{40} \\ 217 \\ \underline{200} \\ 170 \\ \underline{160} \\ 100 \\ \underline{80} \\ 200 \\ \underline{200} \\ \times \end{array}$$

15.425 Ans.

$$(j) 4\frac{7}{8} \Rightarrow \frac{32+7}{8} = \frac{39}{8}$$

$$\begin{array}{r} 8 \overline{) 39} \quad (15.425 \\ \underline{32} \\ 70 \\ \underline{64} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ \times \end{array}$$

**Q4. (a)** 1 rupee = 100 paise

So, (i) 18 paise or  $\frac{18}{100}$  rupees

= ₹ 0.18

(b) 6 paise

$$\frac{6}{100} = ₹ 0.06$$

(c) 250 paise

$$\frac{250}{100} = ₹ 0.250$$

(d) 5 rupees 50 paise

$$5 + \frac{50}{100}$$

$$5 + 0.5 = ₹ 5.5$$

**Q5.** 1 m = 100 cm

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

$$(a) 15 \text{ cm} = \frac{15}{100} \text{ m} \quad \Rightarrow \quad 0.15 \text{ m}$$

$$(b) 9 \text{ cm} = \frac{9}{100} \text{ m} \quad \Rightarrow \quad 0.09 \text{ m}$$

$$(c) 125 \text{ cm} = \frac{125}{100} \text{ m} \quad \Rightarrow \quad 1.25 \text{ m}$$

$$(d) 4 \text{ m } 75 \text{ cm} = 4 + \frac{75}{100} \text{ m} \quad \Rightarrow \quad 4.75 \text{ m}$$

**Q6.** 1 mm = 10 cm = 1 cm =  $\frac{1}{10}$  mm

$$(a) 5 \text{ mm} = 0.5 \text{ cm}$$

$$(b) 40 \text{ mm} = \frac{40}{10} = 4 \text{ cm}$$

$$(c) 175 \text{ mm} = \frac{175}{10} = 17.5 \text{ cm}$$

$$(d) 4 \text{ cm } 5 \text{ mm} = 4 + \frac{5}{10} = 4.5 \text{ cm}$$

**Q7.**  $1 \text{ kg} = 1000 \text{ g}$

$$1 \text{ g} = \frac{1}{1000} \text{ kg}$$

(a)  $15 \text{ kg } 850 \text{ g} = 15 + \frac{850}{1000} \Rightarrow 15.85 \text{ kg}$

(b)  $8 \text{ kg } 96 \text{ g} = 8 + \frac{96}{1000} \Rightarrow 8.096 \text{ kg}$

(c)  $540 \text{ g} = \frac{540}{1000} \Rightarrow 0.54 \text{ kg}$

(d)  $8 \text{ g} = \frac{8}{1000} \Rightarrow 0.008 \text{ kg}$

**Q8.** (a) ₹ 6.25

$$\text{₹ } 1 = 100 \text{ paise}$$

$$\text{So, } 6.25 \times 100 = 625 \text{ paise}$$

(b) 3.5 cm

$$1 \text{ cm} = 10 \text{ mm}$$

$$3.5 \times 10 = 35 \text{ mm}$$

(c) 4.05 km

$$1 \text{ km} = 1000 \text{ m}$$

$$4.05 \times 1000 = 4050 \text{ m}$$

(d) 6.45 m

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

$$6.45 \times 1000 = 645 \text{ g}$$

(e) 8.345 kg

$$1 \text{ kg} = 1000 \text{ g}$$

$$8.345 \times 1000 = 8345 \text{ g}$$

(f) 13.005 kg

$$1 \text{ kg} = 1000 \text{ gm}$$

$$13.005 \times 1000 = 13005 \text{ gm}$$

(g) 12.05 m

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

$$12.05 \times 100 = 1205 \text{ cm}$$

(h) 0.3 cm

$$1 \text{ cm} = 10 \text{ mm}$$

$$0.3 \times 10 = 3 \text{ mm}$$

➔ **Exercise – 8D**

**Q1. (a)**

$$\begin{array}{r} 23.7 \\ 106.94 \\ + 68.9 \\ \hline 199.54 \end{array}$$

**(b)**

$$\begin{array}{r} 165.35 \\ 72.00 \\ + 14.85 \\ \hline 252.20 \end{array}$$

**(c)**

$$\begin{array}{r} 8.236 \\ 16.06 \\ + 63.8 \\ \hline 88.096 \end{array}$$

**Q2. (a)**

$$\begin{array}{r} 40.7 \\ 38.15 \\ 4.02 \\ + 52.4 \\ \hline 135.27 \end{array}$$

$$(b) \quad 3.702$$

$$3.2$$

$$5.03$$

$$+ 2.37$$

$$\hline 14.302$$

$$(c) \quad 14.5$$

$$0.038$$

$$110.462$$

$$+ 5.74$$

$$\hline 136.74$$

$$Q3. (a) \quad 53.74$$

$$- 27.86$$

$$\hline 25.88$$

$$(b) \quad 103.8$$

$$- 64.98$$

$$\hline 38.82$$

$$(c) \quad 39.875$$

$$- 17.68$$

$$\hline 22.195$$

$$Q4. (a) \quad 8.645$$

$$- 5.17$$

$$\hline 3.475$$

$$(b) \quad 18.6$$

$$- 7.69$$

$$\hline 10.81$$

$$(c) \quad 100.000$$

$$- 25.86$$

$$\hline 74.14$$

**Q5.** Ajay spent

$$\begin{array}{r} \text{₹ } 85.75 \quad \text{for maths} \\ + \text{₹ } 62.80 \quad \text{for grammer} \\ \hline \text{Total amount} \quad \text{₹ } 148.55 \end{array}$$

**Q6.**

$$\begin{array}{r} 4 \text{ k g. } 250 \text{ g} \quad \text{rice} \\ 5 \text{ k g. } 050 \text{ g} \quad \text{sugar} \\ \hline 20 \text{ k g. } 750 \text{ g} \quad \text{atta} \\ \hline 30 \text{ k g. } 050 \text{ g} \quad \text{Total Weight} \end{array}$$

**Q7.** A man covers a journey by car in 3 hours.

Distance

$$\begin{array}{r} 54 \text{ k m. } 435 \text{ m} \quad \text{in 1 hour} \\ 48 \text{ k m. } 56 \text{ m} \quad \text{in 2 hour} \\ + 42 \text{ k m. } 8 \text{ m} \quad \text{in 3 hour} \\ \hline 144 \text{ k m. } 499 \text{ m} \quad \text{Total Distance} \end{array}$$

So total distance covered by man is 144 km 499 m.

### ► Multiple Choice Questions

**Q1.** (iv)  $\frac{3}{100} = 0.003$

**Q2.** (ii) 34.016

**Q3.** (iii) 2 km 35 m = 2.035 km

**Q4.** (iii)

**Q5.**  $\frac{4}{10} = \frac{4 \div 2}{10 \div 2} = \frac{2}{5}$

**Q6.** (i)  $0.5 + 0.005 + 5.5 = 5.555$

**Q7.** (i)  $2.1 - 0.3 = 1.8$

**Q8.** (i) 5.004



# Chapter

## 9

# Data Handling

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### ➔ Exercise – 9A

- Q1.** Do yourself  
**Q2.** Do yourself  
**Q3.** Do yourself  
**Q4.** (a) Range (₹ 300 – ₹ 700)  
(b) one  
(c) three

### ➔ Exercise – 9B

- Q1.** (a) 60 books  
(b) Friday  
(c) Tuesday  
(d) 90 books  
(e) Monday, Saturday  
**Q2.** Do yourself  
**Q3.** Do yourself  
**Q4.** (a) A bar graph shows number of students and their shoe numbers.  
(b) 40 students  
(c) 35, shoe no 7  
(d) Shoe no 9, 65 students  
(e) 155 students  
**Q5.** (a) 600 scooters

- (b) 500 scooters
- (c) 100 scooters
- (d) January, 400 scooters

➔ **Exercise – 9C**

- Q1.** Draw graph yourself
- (a) 30-44 and 45- 59
  - (b) 1 lakh 20 thousand
- Q2.** Do yourself
- Q3.** Draw graph yourself
- (a) 2002
  - (b) 1999
- Q4.** Do yourself

➔ **Multiple Choice Questions**

- Q1.** (i) data
- Q2.** (iii) times
- Q3.** (i) pictograph
- Q4.** (ii) vertical





# Chapter

## 10

# Mensuration

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### ↳ Exercise – 10A

**Q1. (a)** Length = 7 cm                      Breadth = 5 cm

$$\begin{aligned}\text{Perimeter} &= 2(l + b) \\ &= 2(7 + 5) \text{ cm} \\ &= 2(12) \text{ cm} \\ &= 24 \text{ cm}\end{aligned}$$

**(b)** Length = 4 cm                      Breadth = 3 cm

$$\begin{aligned}\text{Perimeter} &= 2(l + b) \\ &= 2(4 + 3) \text{ cm} \\ &= 2(7) \text{ cm} \\ &= 14 \text{ cm}\end{aligned}$$

**(c)** Length = 6.5 cm                      Breadth = 3.5 cm

$$\begin{aligned}\text{Perimeter} &= 2(l + b) \\ &= 2(6.5 + 3.5) \text{ cm} \\ &= 2(10) \text{ cm} \\ &= 20 \text{ cm}\end{aligned}$$

**Q2. (a)** Side = 9 cm

$$\begin{aligned}\text{Perimeter} &= 4 \times \text{side} \\ &= 4 \times 9 \text{ cm} \\ &= 36 \text{ cm}\end{aligned}$$

**(b)** Side = 4 m

$$\text{Perimeter} = 4 \times \text{side}$$

$$= 4 \times 4 \text{ m}$$

$$= 16 \text{ m}$$

**(c)** Side = 56.5 cm

$$\text{Perimeter} = 4 \times \text{side}$$

$$= 4 \times 56.5 \text{ cm}$$

$$= 226 \text{ cm}$$

**Q3. (a)** Length = 58 cm

$$\text{Perimeter} = 180 \text{ cm}$$

$$\text{Perimeter} = 2(l + b)$$

$$180 \text{ cm} = 2(58 + b) \text{ cm}$$

$$\frac{180}{2} = (58 + b) \text{ cm}$$

$$90 - 58 = b$$

$$32 \text{ cm} = \text{Breadth}$$

**(b)** Length = 70 cm

Perimeter = 180 cm

$$\text{Perimeter} = 2(l + b)$$

$$180 \text{ cm} = 2(70 + b) \text{ cm}$$

$$\frac{180}{2} = (70 + b) \text{ cm}$$

$$90 - 70 = b$$

$$\text{Breadth} = 20 \text{ cm}$$

**(c)** Length = 51 cm

Perimeter = 180 cm

$$\text{Perimeter} = 2(l + b)$$

$$180 \text{ cm} = 2(51 + b)$$

$$\frac{180}{2} = 51 + b$$

$$90 - 51 = b$$

$$\text{Breadth} = 39 \text{ cm}$$

**Q4. (a)** Perimeter = 16 m

$$\text{Perimeter} = 4 \times \text{side}$$

$$16 \text{ m} = 4 \times \text{side}$$

$$\text{side} = \frac{16}{4} = 4 \text{ m}$$

**(b)** Perimeter = 30 cm

$$\text{Perimeter} = 4 \times \text{side}$$

$$30 \text{ cm} = 4 \times \text{side}$$

$$\text{side} = \frac{30}{4} = 7.5 \text{ cm}$$

**(c)** Perimeter = 22 cm

$$\text{Perimeter} = 4 \times \text{side}$$

$$22 \text{ cm} = 4 \times \text{side}$$

$$\text{side} = \frac{22}{4} = 5.5 \text{ cm}$$

**Q5.** Perimeter = 30 cm                      Ratio = 3 : 2

Let the length and breadth of a rectangle be  $3x$  and  $2x$  respectively.

$$\text{Perimeter} = 2(l + b)$$

$$30 \text{ cm} = 2(3x + 2x)$$

$$30 \text{ cm} = 2(5x)$$

$$\frac{30}{10} = x$$

$$x = 3 \text{ cm}$$

$$\text{Length} = 3x = 3 \times 3 = 9 \text{ cm}$$

$$\text{Breadth} = 2x = 2 \times 3 = 6 \text{ cm}$$

**Q6.** Cost of fencing = ₹ 1600

Rate of fencing a square field = ₹ 25 per m

$$\text{Side of the field} = \frac{\text{Cost of fencing}}{\text{Rate}}$$

$$= \frac{1600}{25}$$

$$= 64 \text{ m}$$

**Q7.** Perimeter =  $2(l + b)$

$$= 2(140 + 100)$$

$$= 2(240)$$

$$= 480 \text{ m}$$

$$4 \text{ round} = 4 \times 480 = 1920 \text{ m}$$

$$\text{and the cost of fencing is} = 24 \times 1920$$

$$= ₹ 46080$$

**Q8.** Perimeter of a square field =  $4 \times S$

$$= 4 \times 200 = 800 \text{ m}$$

$$\text{Perimeter of rectangular field} = 2(l + b)$$

$$= 2(300 + 110)$$

$$= 2(410) = 820 \text{ m}$$

$$\text{Total distance covered by Kruti} = 800 \times 3 = 2400 \text{ m}$$

$$\text{Total distance covered by Riya} = 820 \times 3 = 2460 \text{ m}$$

The greater distance is to be covered by Riya by

$$2460 - 2400 = 60 \text{ m}$$

**Q9.** Let the breadth be =  $x$  m

$$\text{So, Length be} = 2x \text{ m}$$

$$\text{Perimeter} = 2(l + b)$$

$$= 2(2x + x) = 2 \times 3x = 6x$$

$$5 \text{ round mean} = 5 \times \text{Perimeter}$$

$$= 5 \times 6x = 30x$$

$$\text{Given, } 30x = 3 \text{ km or } 3000 \text{ m}$$

$$\text{So, } x = \frac{3000}{30} = 100 \text{ m}$$

$$\text{So, Length of field} = 2 \times 100 = 200 \text{ m}$$

**Q10. (a)**  $3 \times \text{sides}$

$$3 \times 9 = 27 \text{ cm}$$

**(b)**  $8 + 8 + 6 = 22 \text{ cm}$  is the perimeter of isosceles triangle

**(c)**  $(10)^2 = (8)^2 + (AR)^2$

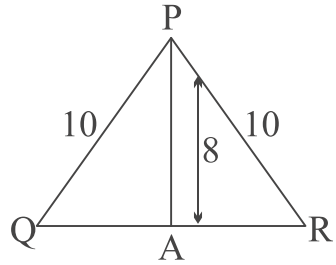
$$100 = 64 + (AR)^2$$

$$36 = (AR)^2$$

$$6 = AR$$

So,  $QR = 2 \times 6 = 12 \text{ cm}$

So, Perimeter =  $10 + 10 + 12 = 32 \text{ cm}$



**(d)**  $6 \times \text{sides} = 6 \times 8 \text{ cm}$

$$= 48 \text{ cm}$$

**Q11. (a)** Perimeter =  $15 \text{ cm} + 15 \text{ cm} + 15 \text{ cm} + 15 \text{ cm}$

$$= 60 \text{ cm}$$

**(b)** Perimeter =  $35 \text{ cm} + 23 \text{ cm} + 35 \text{ cm} + 40 \text{ cm}$

$$= 133 \text{ cm}$$

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

$$= 20 \text{ cm}$$

**(d)** Perimeter =  $1 \text{ cm} + 4 \text{ cm} + 0.5 \text{ cm} + 2.5 \text{ cm} + 2.5 \text{ cm}$

$$+ 0.5 \text{ cm} + 4 \text{ cm} = 15 \text{ cm}$$

**Q12.** Perimeter of Square Park =  $4 \times \text{side} = 4 \times 250 \text{ m}$

$$= 1000 \text{ m}$$

Cost of fencing per m = ₹ 20

Cost of fencing 1000 m = ₹  $20 \times 1000 = ₹ 20,000$

### ➔ Exercise – 10B

**Area of rectangle** =  $l \times b$

**Q1. (a)**  $25 \times 12 = 300 \text{ sq cm}$

$$(b) 10 \times 8 = 80 \text{ m}^2 \text{ or } 80 \text{ sq m}$$

**Area of square = side  $\times$  side**

**Q2. (a)**  $6 \times 6 = 36 \text{ cm}^2$

**(b)**  $4.2 \times 4.2 = 17.64 \text{ sq cm}$

**(c)**  $5.5 \times 5.5 = 30.25 \text{ sq cm}$

**(d)**  $90 \times 90 = 8100 \text{ sq cm}$

**Q3.** Playground Area =  $l \times b$

$$675 = l \times b$$

$$\frac{675}{15} = l$$

$$l = 45 \text{ m}$$

**Q4.** Area of room =  $l \times b$

$$\text{Length} = 500 + 40 \text{ cm} = 540 \text{ cm}$$

$$\text{Breadth} = 300 + 75 = 375 \text{ cm}$$

$$\text{Area of room} = \text{Area of carpet needed}$$

$$= 540 \times 375 = 202500 \text{ sq. cm}$$

**Q5.** Perimeter =  $2(l + b)$

$$\text{Rectangular area} = l \times b$$

$$650 = l \times 13$$

$$50 = l$$

$$\text{Perimeter} = 2(50 + 13)$$

$$= 63 \times 2$$

$$= 126 \text{ cm}$$

**Q6. (a)** Length is double =  $2l$

$$\text{Breadth is triple} = 3b$$

$$\text{Area} = 2l \times 3b$$

$$= 6l \times b$$

4 times area of previous rectangle.

**Q7.** Area of wall =  $l \times b$   
 $= 4 \times 3$   
 $= 12 \text{ m}^2$  or 120000 sq cm

Area of tile =  $25 \times 20$   
 $= 500 \text{ sq cm}$

No. of tile needed =  $\frac{120000}{500}$   
 $= 240 \text{ tiles}$

**Q8.** Area of park = ₹ 2400 ÷ 5 = 480 sq m  
Width of boundary = 15 m

Length of boundary =  $\frac{480}{15} = 32 \text{ m}$

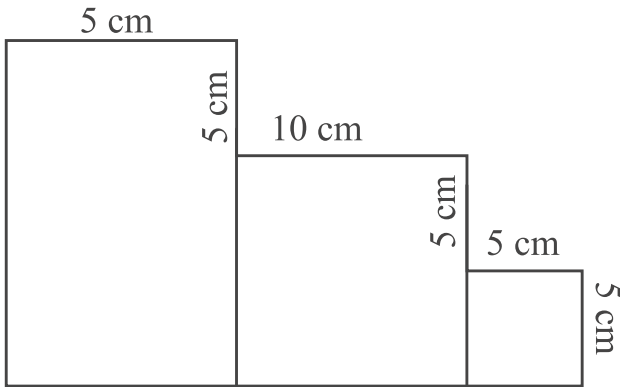
Perimeter =  $2(l + b) = 2(32 + 15) = 94 \text{ m}$

Cost of making its boundary =  $94 \times 2.25$   
 $= ₹ 211 \text{ and } 50 \text{ paisa}$

**Q9.** Number of bricks =  $\frac{\text{Area of lane}}{\text{Area of one brick}}$   
 $= \frac{180 \times 5 \times 100 \times 100}{20 \times 15}$

Cost of bricks =  $\frac{30000 \times 750}{1000} = 22500$

**Q10.**



(a) Area of (1) =  $l \times b$

$$= 15 \times 5 = 75 \text{ sq cm}$$

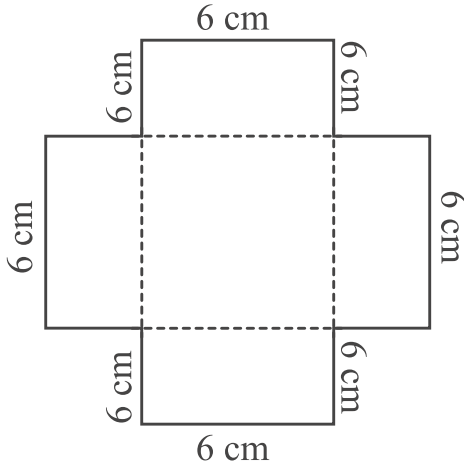
Area of (2) =  $l \times b$

$$= 10 \times 10 = 100 \text{ sq cm}$$

Area of (3) =  $5 \times 5 = 25 \text{ sq cm}$

So, area of figure =  $75 + 100 + 25 = 200 \text{ sq cm}$

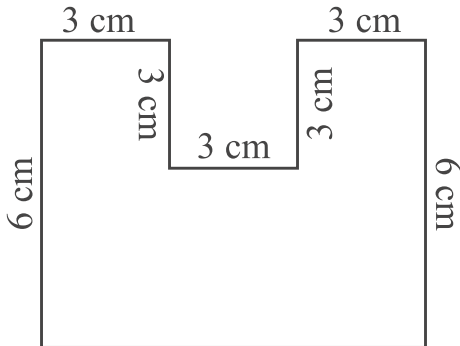
(b) No of square formed are = 5



And area of one =  $6 \times 6 = 36 \text{ sq cm}$

Total =  $36 \times 5 = 180 \text{ sq cm}$

(c)



Area of (1) and (3) =  $l \times b$

$$= 3 \times 6 = 18 \text{ sq cm}$$



$$\text{Area of (2)} = l \times b = 3 \times 3 = 9 \text{ sq cm}$$

$$\text{So, area of fig. } 18 + 18 + 9 = 45 \text{ sq cm}$$

### ➔ Multiple Choice Questions

**Q1.** (ii) Perimeter

**Q2.** (iv) 10 cm

$$\text{Perimeter of square} = 4s$$

$$40 = 4s$$

$$10 = s$$

**Q3.** (i) doubled

$$\text{Area} = l \times b$$

$$\text{if } l = 2l$$

$$\text{Then Area} = 2l \times b = 2lb$$

**Q4.** (i)  $81 \text{ cm}^2$

$$\text{Perimeter of square} = 4 \times s$$

$$36 = 4 \times \text{side}$$

$$\frac{36}{4} = \text{side}$$

$$\text{side} = 9$$

$$\text{Area of square} = (s)^2$$

$$= (9)^2 = 81$$

**Q5.** (iv) 8 m

$$\text{Area of rectangle} = l \times b$$

$$= 8 \times 6 = 48 \text{ cm}^2$$

$$\text{Cut in 12 pieces so as } = \text{area} = (s)^2$$

$$(s)^2 = \frac{48}{12}$$

$$s = 2$$

$$\text{Perimeter} = 4 \times 2$$

$$= 8 \text{ m}$$

**Q6.** (ii) 4800 cm

$$\text{Area of square} = 144$$

$$s^2 = 144$$

$$s = 12$$

$$\text{Perimeter} = 4 \times s$$

$$= 4 \times 12 = 48 \text{ m or } 4800 \text{ cm}$$

**Q7.** (iii) one fourth.

$$S = \frac{s}{2}$$

$$\text{Area} \Rightarrow \frac{s \times s}{2 \times 2} = \frac{s^2}{4}$$

**Q8.** (i) 1000 tiles

$$\text{Area of a tile measure } 12 \text{ cm} \times 10 \text{ cm} = 120 \text{ cm}^2$$

$$\text{Area of cover floor } 3 \text{ m} \times 4 \text{ m} = 12 \text{ m}^2 \text{ or } 1200 \text{ cm}^2$$

$$\text{No. of tiles} = \frac{120000}{120} = 1000 \left( \frac{\text{Area of floor}}{\text{Area of 1 tile}} \right)$$

$$= 1000$$



# Chapter

## 11

# Algebra

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### ➔ Exercise – 11A

**Q1.** (a)  $6n$

(b)  $5n$

(c)  $5n$

(d)  $2n$

**Q2.** Number of boxes =  $b$

Number of mangoes in each box = 50

∴ Total number of mangoes =  $50b$

**Q3.** Let Radha's age be  $x$  years

∴ Leela's age =  $(x - 4)$  years

**Q4.** Number of oranges in one box =  $x$

Number of boxes = 2

∴ Total number of oranges in boxes =  $2x$

Remaining oranges = 10

Thus, number of oranges =  $2x + 10$

**Q5.** Side of an equilateral triangle =  $l$

∴ Perimeter of equilateral triangle =  $3 \times \text{side}$

$$= 3 \times l$$

$$= 3l$$

**Q6.** Since, length of diameter is double the length of radius.

∴  $d = 2r$

**Q7.** Number of rows =  $n$

Cadets in each row = 5

∴ Total number of cadets =  $5n$

**Q8.** Side of regular hexagon =  $l$

Perimeter of hexagon =  $6 \times \text{side}$

$$= 6 \times l$$

$$= 6l$$

### ➔ Exercise – 11B

**Q1.** (a)  $x + 5$

(b)  $(x + 3) + y$

(c)  $(y + 8) + x$

(d)  $x - 7$

(e)  $xy + (x + y)$

(f)  $\frac{1}{4}p(x + 6)$

(g)  $\frac{x}{y} - 2$

(h)  $\frac{1}{3}y - 4x$

(i)  $x - 2xy$

(j)  $y^2 + 3x$

**Q2.** (a)  $d = 2r$ ;  $d = \text{diameter}; r = \text{radius}$

(b)  $p = 2(1 + b)$   $p = \text{perimeter}; l = \text{length}; b = \text{breadth}$

(c)  $a = 1 \times b$ ;  $A = \text{Area of the rectangle}; l = \text{length};$   
 $b = \text{breadth}$

(d)  $d = s \times t$ ;  $d = \text{distance}; s = \text{speed}; t = \text{time}$

(e)  $S.P. = C.P. + P$ ;

$S.P. = \text{Selling price}; C.P. = \text{Cost price}; P = \text{Profit}$

$$(f) A = \frac{1}{2}(b \times h)$$

$b$  = base;  $h$  = height;  $A$  = area

**Q3. (a)**  $4(y + 1)$

**(b)**  $3(y - 4)$

**(c)**  $4(y + 2)$

**(d)**  $\frac{1}{3}(y - 5) - 3$

**Q4.** 80 marks in science  $x$  marks in maths

$(80 + x)$  marks = total

**Q5.** 2 weeks has 14 days

Expenditure = ₹  $14x$ , saving ₹  $14y$

Income in 2 weeks's

Income = expenditure + savings

$$= ₹ (14x + 14y)$$

**Q6.** In 1 step Rahul cover ' $a$ ' centimeter

Another in ' $b$ ' steps he will cover =  $a \times b = ab$  cms

**Q7.** Let the breadth of the rectangular hall =  $b$  metres

Length of the hall =  $3b - 4$  m

$\therefore$  The length of the hall is  $3b - 4$  m.

**Q8.** Speed of bus =  $v$  km/hr

Distance = Speed  $\times$  Time

Distance travelled by the bus in 5 hours

$$= v \times 5 \text{ km}$$

$$= 5v \text{ km}$$

Distance from Daspur to Buspur = Distance travelled by

bus in 5 hour + 20 km

$$= (5v + 20) \text{ km}$$

### ↳ Exercise – 11C

- Q1.** (a) It is not an equation as L.H.S. is greater than R.H.S.  
(b) It is an equation with no variable.  
(c) It is not an equation as L.H.S. is less than R.H.S.  
(d) It is an equation of variable as both the sides are equal.  
The variable is  $x$ .  
(e) It is an equation with no variable as its both sides are equal.  
(f) It is an equation of variable  $p$ .  
(g) It is an equation of variable  $x$ .

**Q2.** (a)  $5m = 60$

$$\frac{1}{5} \times 5m = 60 \times \frac{1}{5}$$

$$m = 12$$

(b)  $p - 5 = 5$

$$p - 5 + 5 = 5 + 5$$

$$p = 10$$

(c)  $\frac{q}{2} = 7$

$$2 \times \frac{q}{2} = 7 \times 2$$

$$q = 14$$

(d)  $r - 4 = 0$

$$r - 4 + 4 = 0 + 4$$

$$r = 4$$

(e)  $x + 4 = 2$

$$x + 4 - 4 = 2 - 4$$

$$x = -2$$

(f)  $n + 12 = 20$

$$n + 12 - 12 = 20 - 12$$

$$n = 8$$

- Q3.** (a) No  
(b) Yes  
(c) No  
(d) Yes  
(e) No  
(f) Yes

➔ **Multiple Choice Questions**

**Q1.** (ii) literals

**Q2.** (ii)  $5x$

**Q3.** (i)  $5x + 3y$

**Q4.** (ii)  $b + 5 - 5 = 9 - 5$

$$b = 4$$

**Q5.** (iii)  $p = 4 \times \text{side then } (4S)$

**Q6.** (i)  $\frac{45}{3} = 15 \text{ years}$



# Chapter

## 12

# Ratio and Proportion

### ↳ Exercise – 12A

Q1. (a)  $\frac{30 \text{ minutes}}{55 \text{ minutes}} = \frac{6}{11}$  or 6 : 11

(b) 1 day = 24 hours  
2 days = 48 hours  
 $\frac{18}{48} = \frac{3}{8}$  or 3 : 8

(c)  $\frac{81}{108} = \frac{3}{4}$  or 3 : 4

(d)  $2 \times 1000 \text{ ml} + 750 \text{ ml}$  and 750 ml  
 $\frac{2750}{750} = \frac{11}{3}$  or 11 : 3

Q2. (a) 48 paise to ₹ 3  
 $\frac{48}{300} = \frac{48 \div 12}{300 \div 12} = \frac{4}{25}$  or 4 : 25

(b) 4 m to 64 cm  
 $\frac{400}{64} = \frac{400 \div 16}{64 \div 16} = \frac{25}{4}$  or 25 : 4

(c) 26 kg to 20 g  
 $\frac{26000}{20} = \frac{26000 \div 20}{20 \div 20} = \frac{1300}{1}$  or 1300 : 1

(d) 8 week : 8 days  
 $\frac{7 \times 8}{8} = \frac{7}{1}$  or 7 : 1



|            |                |    |         |    |
|------------|----------------|----|---------|----|
| <b>Q3.</b> | English        | 88 | Maths   | 99 |
|            | Hindi          | 92 | Science | 96 |
|            | Social Science | 95 |         |    |

$$(a) \frac{\text{English}}{\text{Maths}} = \frac{88 \div 11}{99 \div 11} = \frac{8}{9} \text{ or } 8 : 9$$

$$(b) \frac{\text{Total marks obtained}}{\text{Maximum marks}} = \frac{476}{500} = \frac{47}{50} \text{ or } 47 : 50$$

$$(c) \frac{\text{Maths}}{\text{Science}} = \frac{99}{96} = \frac{33}{32} \text{ or } 33 : 32$$

$$\mathbf{Q4. (a)} \frac{\text{Mr Ajeet's Income}}{\text{Income of wife}} = \frac{9200}{4950} = \frac{184}{99} \text{ or } 184 : 99$$

$$(b) \frac{\text{Mrs Ajeet's Income}}{\text{Income of husband}} = \frac{4950}{9200} = \frac{4950 \div 50}{9200 \div 50} = \frac{99}{184} \\ \text{or } 99 : 184$$

$$(c) \frac{\text{Mr Ajeet's Income}}{\text{Total Income of two}} = \frac{9200}{4950 + 9200} = \frac{9200}{14150} \\ = \frac{184}{283} \text{ or } 184 : 283$$

$$\mathbf{Q5. (a)} \frac{\text{No. of girls}}{\text{No. of boys}} = \frac{20}{30} = \frac{2}{3} \text{ or } 2 : 3$$

$$(b) \frac{\text{No. of boys}}{\text{Total students}} = \frac{30}{50} = \frac{3}{5} \text{ or } 3 : 5$$

$$(c) \frac{\text{No. of girls}}{\text{Total students}} = \frac{20}{50} = \frac{2}{5} \text{ or } 2 : 5$$

$$\mathbf{Q6.} \text{ Ratio of breadth to length} = 2 : 5 = \frac{2}{5}$$

$$\therefore \text{ Other equivalent ratios are } = \frac{2 \times 10}{5 \times 10} = \frac{20}{50},$$

$$\frac{2}{5} \times \frac{20}{20} = \frac{40}{100}$$

Thus,

|                            |    |    |     |
|----------------------------|----|----|-----|
| Breadth of the hall (in m) | 10 | 20 | 40  |
| Length of the hall (in m)  | 25 | 50 | 100 |

Q7. We know that,  $\text{Speed} = \frac{\text{Distance}}{\text{Time}}$

$$\text{Speed of Hamid} = \frac{9 \text{ km}}{1 \text{ h}} = 9 \text{ km/h}$$

$$\text{Speed of Akhtar} = \frac{12 \text{ km}}{1 \text{ h}} = 12 \text{ km/h}$$

Ratio of speed of Hamid to that speed of Akhtar

$$= \frac{9}{12} = \frac{3}{4} = 3 : 4$$

Q8. (a) Ratio of father's present age to that of son =  $\frac{\cancel{42}^3}{\cancel{14}_1} = \frac{3}{1}$   
 $= 3 : 1$

(b) When son was 12 years, *i.e.*, 2 years ago, then father was  $(42 - 2) = 40$  years.

$$\text{Therefore, the ratio of their ages} = \frac{40}{12} = \frac{10}{3} = 10 : 3$$

(c) Age of father after 10 years =  $42 + 10 = 52$  years

Age of son after 10 years =  $14 + 10 = 24$  years

$$\text{Therefore, ratio of their ages} = \frac{52}{24} = \frac{13}{6} = 13 : 6$$

### ► Exercise – 12B

Q1. Ist part =  $\frac{10}{17} \times 3400 = ₹ 2000$

$$\text{IInd part} = \frac{4}{17} \times 3400 = ₹ 800$$

$$\text{IIIrd part} = \frac{3}{17} \times 3400 = ₹ 600$$

**Q2.** Ratio of Numbers = 1 : 8

Sum of the numbers = 135

$$\text{First Number} = \frac{1}{9} \times \frac{135}{1} = 15$$

$$\text{Second Number} = \frac{8}{9} \times \frac{135}{1} = 120$$

So, the numbers are 15 and 120.

**Q3.**  $\frac{\text{length}}{\text{width}} = \frac{5}{3}$

Width = 42 m

$$\frac{l}{42} = \frac{5}{3}$$

$$3l = 210$$

$$l = 70$$

**Q4.** Boys : Girls = 15 : 19

Total strength = 204

$$\text{Boys} = \frac{15}{34} \times \frac{204}{1} = 90$$

$$\text{Girls} = \frac{19}{34} \times \frac{204}{1} = 114$$

**Q5.** 121 divided in two parts 9 : 2

$$\text{1st part} = \frac{\text{Ist term of ratio}}{\text{Sum of ratios}} \times \frac{\text{Total}}{1}$$

$$= \frac{9}{11} \times 121$$

$$= 99$$

$$\text{Ind part} = \frac{2}{11} \times 121 = 22$$

➔ **Exercise – 12C**

**Q1. (a)**  $55 : 33 :: 60 : 48$

$$55 \times 48 = 33 \times 60$$

$$2640 \neq 1980$$

False

**(b)**  $36 : 45 :: 80 : 100$

$$36 \times 100 = 45 \times 80$$

$$3600 = 3600$$

True

**(c)**  $6 : 21 :: 10 : 35$

$$6 \times 35 = 21 \times 10$$

$$210 = 210$$

True

**(d)**  $32 \text{ kg} : ₹ 36 :: 8 \text{ kg} : ₹ 9$

$$32 \times 9 = 36 \times 8$$

$$288 = 288$$

True

**Q2. (a)**  $\frac{51}{85} = \frac{57}{x}$

$$51x = 57 \times 85$$

$$x = \frac{57 \times 85}{51} = 95$$

$$x = 95$$

**(b)**  $\frac{x}{92} = \frac{87}{116}$

$$x = \frac{87 \times 92}{116}$$

$$x = 69$$

**Q3. (a)** 32, 48, 72, 210

$$32 \times 210 = 48 \times 72$$

$$6720 \neq 3456$$

No.

**(b)** 150, 200, 250, 300

$$150 \times 300 = 200 \times 250$$

$$45000 \neq 50000$$

No

**Q4.** Let third term be  $x$ .

$$32, 112, x, 217$$

$$32 : 112 :: x : 217$$

$$\frac{32}{112} = \frac{x}{217} = \frac{434}{7} = x$$

$$\Rightarrow 62 = x$$

**Q5.** Let the 2nd term be  $x$ .

$$7, x, 28, 68$$

$$\frac{7}{x} = \frac{28}{68} \quad \Rightarrow \quad \frac{7 \times 68}{28} = x$$

$$17 = x$$

So, the second term is 17.

**Q6.** 48, 36,  $x$

$$\frac{48}{36} = \frac{36}{x}$$

$$x = \frac{36 \times 36}{48}$$

$$x = 27$$

**Q7.** Length of rectangular field or its perimeter = 63 m

$$\text{Length} : \text{breadth} = 5 : 4$$

Let the length be =  $5x$

breadth =  $4x$

$$\begin{aligned}\text{Perimeter} &= 2(l + b) \\ &= 2(5x + 4x) \\ &= 18x\end{aligned}$$

$18x : 63$

$$x = \frac{63}{18} = 3.5 \text{ m}$$

So, breadth =  $4x$

$$= 4 \times 3.5 = 14 \text{ m}$$

### ➔ Exercise – 12D

**Q1.** Cost of 8 m cloth is ₹ 320

$$\text{Cost of 1 m cloth is} = \frac{320}{8} = ₹ 40$$

$$\text{Cost of 12 m cloth is} = 40 \times 12 = ₹ 480$$

**Q2.** 1000 apples in 25 box.

$$\text{In 1 box} = 40 \text{ apples}$$

$$\text{In 25 box} = 40 \times 25 = 1000 \text{ apples}$$

**Q3.** No. of days for which the given quantity, of rice is sufficient for 180 persons = 3 days

No. of days for which it is sufficient for 1 person

$$= 3 \times 180 \text{ days}$$

No. of days for which it is sufficient for 10 persons

$$= \frac{3}{10} \times 180$$

$$= 54 \text{ days}$$

**Q4.** Aashi made 42 run is 6 over

$$\text{per over 7 runs i.e., } \left( \frac{42}{6} \right)$$

Sparsh made 81 runs in 9 overs

$$\text{per over } \frac{81}{9} = 9 \text{ runs}$$

So, sparsh made more runs per over.

**Q5.** 3 pens, 5 pencils = ₹ 14

$$3 \times 4 = 12 \text{ pen and } 5 \times 4 = 20 \text{ pencils} = 14 \times 4 = ₹ 56$$

**Q6.** Earn ₹ 15 per hour

$$\text{in 8 hour or 1 day} = 15 \times 8$$

$$\text{For 5 days} = 15 \times 8 \times 5 = ₹ 600$$

**Q7.** Cost of 6 kg rice = Cost of 8 kg wheat

$$\text{Cost of 1 kg wheat} = 6$$

$$\text{Cost of 8 kg wheat} = ₹ 48$$

$$\text{Cost of 1 kg rice} = \frac{48}{6} = 8$$

### ➔ Multiple Choice Questions

**Q1.** (ii) 100 cm

$$1 : 3 : 5$$

Let ratio be  $1x$ ,  $3x$  and  $5x$

$$\text{Perimeter} = 1x + 3x + 5x = 180$$

$$9x = 180$$

$$x = 20$$

$$\text{Largest side} = 5 \times 20 = 100 \text{ cm}$$

**Q2.** (ii) 3 : 5

$$1 \text{ dozen} = 12, 1 \text{ score} = 20 \text{ so } 12 : 20 = 3 : 5$$

**Q3.** (i) 22 days

$$550 \text{ men provision} = 28 \text{ days}$$

$$1 \text{ man provision} = 28 \times 550$$

$$700 \text{ men} = \frac{28 \times 550}{700} = 22 \text{ days}$$

**Q4.** (iii) 21

$$\frac{9}{x} = \frac{x}{49}$$

$$9 \times 49 = x^2$$

$$3 \times 7 = x$$

$$x = 21$$

**Q5.** (ii)  $ad = cb$

$$\frac{a}{b} = \frac{c}{d}$$

**Q6.** (ii) 40, 30, 100, 75

$$\therefore 40 \times 75 = 30 \times 100$$

$$3000 = 3000$$

**Q7.** (i) ₹ 600

$$\text{Cost of 1 packet of 1 pencil} = \frac{750}{25 \times 17}$$

$$\begin{aligned} \text{Cost of 30 packets of 8 pencils} &= \frac{750}{25 \times 12} \times \frac{30 \times 8}{1} \\ &= ₹ 600 \end{aligned}$$

**Q8.** (i) 6.5 g

Weight of alloy = 10.4 g

Given, ratio of zinc : copper = 5 : 3

$$\text{Weight of Zinc} = \frac{5}{8} \times 10.4 \text{ g} = 6.5 \text{ g}$$





# Chapter

## 13

# Symmetry

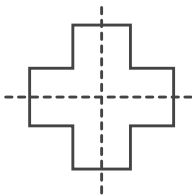
### Exercise – 13A

- Q1. (a) *S*  
(b) *S*  
(c) *NS*  
(d) *NS*

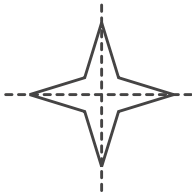
- Q2. (a) one



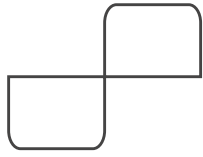
- (b) two



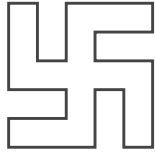
- (c) two



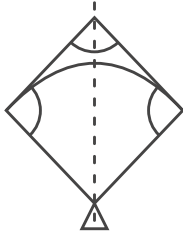
- (d) no



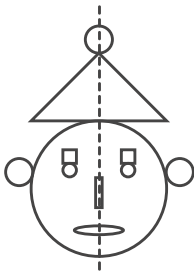
(e) no



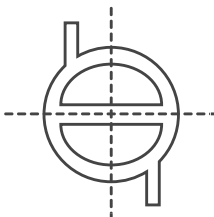
(f) one



(g) one



(h) two



- Q3.** (a) Vertical lines : A, H, I, M, O, T, U, V, W, X, Y  
(b) Horizontal lines : B, C, D, E, H, I, K, O, X

- (c) No lines of symmetry : F, G, J, N, P, Q, R, S, Z
- Q4.** (a) Symmetrical  
(b) Non-symmetrical  
(c) Symmetrical  
(d) Non-symmetrical  
(e) Non-symmetrical  
(f) Symmetrical
- Q5.** (a) Yes, Isosceles triangles  
(b) No such triangle cannot be formed.  
(c) Yes, Equilateral triangle  
(d) Yes, Scalene triangle (Figure yourself)
- Q6.** Do yourself
- Q7.** Do yourself

➔ **Multiple Choice Questions**

- Q1.** (i) 4
- Q2.** (iv) ×
- Q3.** (ii) isosceles
- Q4.** (iii) countless line of symmetry
- Q5.** (i) no line of symmetry
- Q6.** (i) one
- Q7.** (i) one
- Q8.** (iv) more than three



# Chapter

## 14

# Practical Geometry

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➔ **Exercise – 14A**

**Do yourself**

➔ **Exercise – 14B**

**Refer to Examples (Do yourself)**

➔ **Exercise – 14C**

**Refer to Examples (Do yourself)**

➔ **Exercise – 14D**

**Refer to Examples (Do yourself)**

