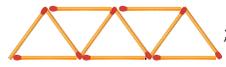
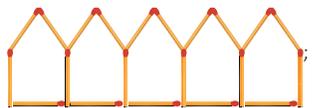


# ANSWERS

## Chapter 1: Patterns in Mathematics

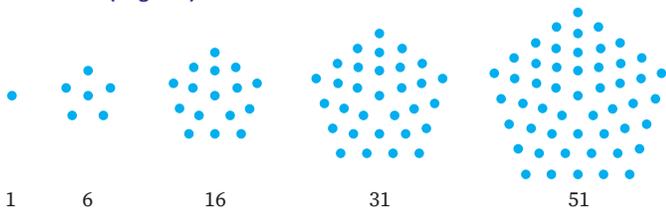
### Let's Recall

-  ; 1 1 1 1 1 1, yes
-  ; 1 2 3 4 5 6, yes
-  ; 3 5 7 9 11, yes
-  ; 4 7 10 13 16, yes
-  ; 5 9 13 17 21, yes

### Practice Time 1A

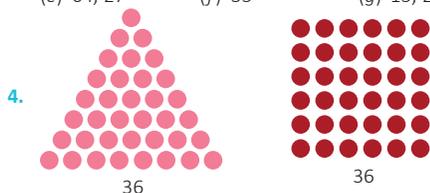
- (a) 12, 28 (b) 11, 22, 29, 37
- (a) 30, 28 (b) 73, 66, 55
- $987654321 \times 9 = 888888889$   
 $987654321 \times 18 = 1777777778$   
 $987654321 \times 27 = 2666666667$   
 $987654321 \times 36 = 3555555556$   
 $987654321 \times 45 = 4444444445$   
 $987654321 \times 54 = 5333333334$   
 $987654321 \times 63 = 6222222223$   
 $987654321 \times 72 = 7111111112$   
 $987654321 \times 81 = 8000000001$
- $5 = 1 + 1 + 1 + 1 + 1 = 1 + 1 + 1 + 2 = 1 + 1 + 2 + 1 = 1 + 2 + 1 + 1$   
 $= 2 + 1 + 1 + 1 = 1 + 2 + 2 = 2 + 1 + 2 = 2 + 2 + 1 = 1 + 1 + 3$   
 $= 1 + 3 + 1 = 3 + 1 + 1 = 2 + 3 = 3 + 2 = 1 + 4 = 4 + 1$
- 89 ways

### Think Tank (Page 13)



### Practice Time 1B

- (a) 10, 66, 100, 28, 64 (b) 25, 81, 35, 55, 49, 27, 15  
 (c) 10, 15, 28, 55, 66 (d) 25, 81, 100, 64, 49  
 (e) 64, 27 (f) 35 (g) 15, 28, 66



1 and 1225 are both triangular and square numbers.

### Fast Check (Page 14)



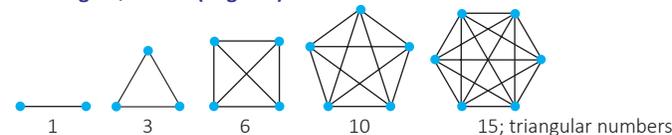
### Practice Time 1C

- 1, 3, 6, 10, 15, 21, 28, 36, 45, 55  
 Multiplying by 6 and adding 1 will give a centred hexagonal number starting with 7.
  - 64
  - A pair of triangular numbers
  - An even number
  - 100th triangular number = 5050  
 1000th triangular number = 500500
- Triangular number =  $\frac{1}{2} \times$  Product of dots along length and breadth of the rectangle so formed.
- $65 = 8^2 + 1^2 = 7^2 + 4^2$
  - $99999 \times 2 = 199998$
  - $9999999 \times 2 = 19999998$
  - $11111 \times 88888 = 987634568$   
 $111111 \times 888888 = 98765234568$   
 $1111111 \times 8888888 = 9876541234568$
  - $12345 \times 8 + 5 = 98765$   
 $123456 \times 8 + 6 = 987654$   
 $1234567 \times 8 + 7 = 9876543$   
 $12345678 \times 8 + 8 = 98765432$
  - The sum of consecutive centred hexagonal numbers is a cubic number.

### Practice Time 1D

- Nonagon, decagon
- Brick walls
- 3, 4, 5, 6, ...  
 These are counting numbers starting with 3.
- 1, 4, 9, 16, 25. This is the sequence of square numbers.
- A honeycomb is hexagonal because hexagons efficiently cover a surface without leaving gaps, using the least amount of material to enclose the maximum area. One can create a similar pattern using triangles or squares too.
- 3, 12, 48, ... Next number is obtained by multiplying previous number by 4.

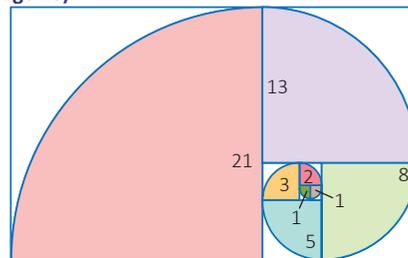
### Challenge Question (Page 20)



### Mental Maths (Page 20)

- Even numbers
- 343
- Centred hexagonal

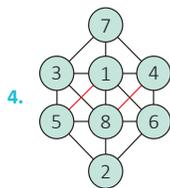
### Maths Fun (Page 20)



### Chapter Assessment

- (c)
  - (d)
  - (b)
  - (a)
  - (a)
- Virahanka numbers
  - 1, 8
  - square number
  - $25 + 16 + 9 + 4 + 1 = 55$
- False
  - False
  - False
  - True
- (c)
  - (d)
  - (a)
  - (b)
- $9 \times 9 = 81$   
 $99 \times 99 = 9801$   
 $999 \times 999 = 998001$   
 $9999 \times 9999 = 99980001$   
 $99999 \times 99999 = 9999800001$
  - $1111 \times 1111 = 1234321$   
 $111111 \times 111111 = 12345654321$   
 $1111111 \times 1111111 = 1234567654321$   
 $11111111 \times 11111111 = 123456787654321$   
 Palindrome numbers, Mahavira

3. Truncated Icosahedron



**Chapter 2: Lines and Angles**

**Let's Recall**

4. 21st June

**Fast Check (Page 29)**

- (a) Ray (b) Plane (c) Line segment (d) Point
- Line: (a) no (b) infinite (c) cannot (d)  $\overline{AB}$   
 Line segment: (a) two (b) finite (c) can (d)  $\overline{AB}$
- Ray: (a) one (b) infinite (c) cannot (d)  $\overline{AB}$

**Practice Time 2A**

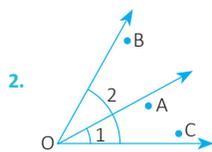
- (b) 2. (b) 3. (c)
- (a) False (b) True (c) True (d) False
- (a)  $\overline{AE}$ ,  $\overline{FE}$  (b)  $\overline{AE}$  (c)  $\overline{CO}$   
 (d)  $\overline{AE}$ ,  $\overline{CO}$  and  $\overline{DE}$ ,  $\overline{FE}$
- (a) True (b) True (c) True (d) False  
 (e) False (f) False (g) True
- $\overline{LM}$ ,  $\overline{MP}$ ,  $\overline{PQ}$ ,  $\overline{QR}$ ; Point L and point R
- $\overline{TA}$ ,  $\overline{TB}$ ,  $\overline{NB}$ ,  $\overline{TN}$
- (a)  $\overline{GF}$ ,  $\overline{NM}$  (b)  $\overline{GE}$ ,  $\overline{EF}$ ,  $\overline{GF}$ ,  $\overline{ED}$ ,  $\overline{DC}$ ,  $\overline{CE}$ ,  $\overline{BC}$ ,  $\overline{AB}$ ,  $\overline{DO}$ ,  $\overline{MN}$   
 (c)  $\overline{EF}$ ,  $\overline{GF}$ ,  $\overline{FG}$ ,  $\overline{EG}$ ,  $\overline{BA}$ ,  $\overline{DC}$ ,  $\overline{DO}$ ,  $\overline{NM}$ ,  $\overline{MN}$

**Practice Time 2B**

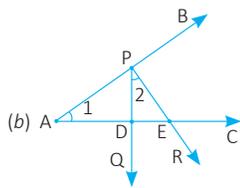
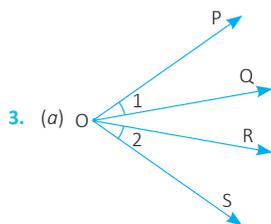
- $\overline{AB} = \overline{BC} = \overline{CD}$  3. Yes,  $\overline{AC} = \overline{AB} + \overline{BC}$
- (a)  $\overline{AC}$  (b)  $\overline{DR}$  (c)  $\overline{QR}$  (d)  $\overline{EQ}$

**Practice Time 2C**

- (a)  $\angle BAE$ ,  $\angle AED$ ,  $\angle EDC$ ,  $\angle DCB$ ,  $\angle CBA$   
 (b)  $\angle 1$ ,  $\angle 2$ ,  $\angle 3$ ,  $\angle CBE$ ,  $\angle DBA$ ,  $\angle ABC$



Yes, C lies in the interior of  $\angle 2$  also.



(Answer may vary)

**Fast Check (Page 38)**

- (a)  $\angle AOY$ ;  $\angle XOY$  is included in  $\angle AOY$   
 (b)  $\angle AOC$ ,  $\angle XOY$  is included in  $\angle AOC$   
 (c)  $\angle YOY$  and  $\angle YOY$  both are the same angle.
- $\angle XOY$

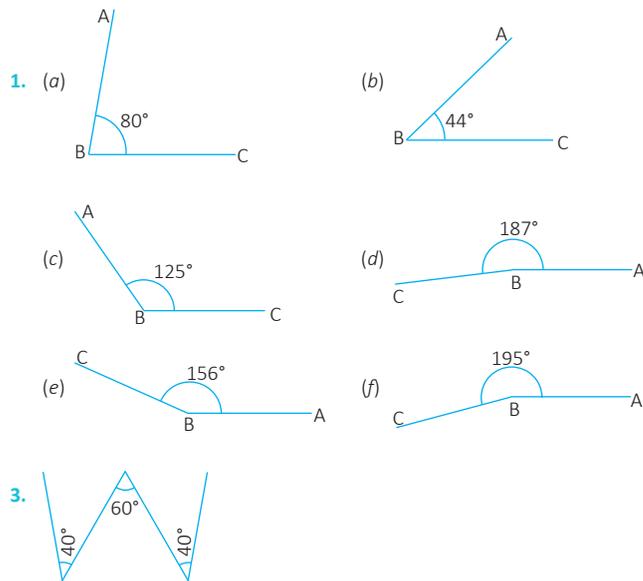
**Practice Time 2D**

- (a)  $40^\circ$  (b)  $50^\circ$  (c)  $90^\circ$
- (a)  $35^\circ$  (b)  $94^\circ$  (c)  $55^\circ$  (d)  $125^\circ$  (e)  $31^\circ$
- $18^\circ$  7. Sum of  $\angle 1 + \angle 2 + \angle 3 = 180^\circ$  in each case.

**Fast Check (Page 45)**

- OR 2.  $\angle TOQ$ , OR

**Practice Time 2E**



**Fast Check (Page 51)**

- (a) Acute (b) Right (c) Obtuse (d) Reflex
- Acute angle:  $\angle EAB$ ; Obtuse angles:  $\angle ABC$ ,  $\angle AED$ ; Right angle:  $\angle DCB$

**Enrichment (Pages 52-53)**

- No 2. Yes 3. Yes 4. Yes 5. Yes

**Practice Time 2F**

- (Answer may vary)
- (a) True (b) False (c) True (d) False (e) False
- (a) Obtuse (b) Acute (c) Right (d) Complete  
 (e) Reflex (f) Obtuse (g) Straight (h) Acute
- (a)  $\frac{1}{2}$  (b)  $\frac{1}{4}$  (c)  $\frac{3}{4}$
- (a)  $\frac{1}{4}$  (b) 1 6. (a) 2 (b) 1 (c) 1
- (a) 2 (b) 3 8. (a) 2 (b) 11
- (a) 1 (b) 10
- (a)  $90^\circ$  (b)  $30^\circ$  (c)  $180^\circ$
- (a)  $60^\circ$  (b)  $120^\circ$  (c)  $30^\circ$  (d)  $120^\circ$
- (a) acute angle (b) straight angle  
 (c) acute angle (d) obtuse angle  
 (e) straight angle (f) acute angle
- (a) X is midpoint of AC, Y is midpoint of BC, Z is midpoint of AB  
 (b) p is the bisector of AC and q is the bisector of BC.  
 (c) r, p (d) q
- (a) Yes, for example,  $30^\circ + 15^\circ = 45^\circ$  (an acute angle)  
 (b) Yes, for example,  $45^\circ + 45^\circ = 90^\circ$  (a right angle)  
 (c) Yes, for example,  $50^\circ + 50^\circ = 100^\circ$  (an obtuse angle)  
 (d) No,  $90^\circ + 90^\circ = 180^\circ$ , if one angle is less than  $90^\circ$  (acute angle), then the other must be greater than  $90^\circ$  (obtuse angle) to get the sum  $180^\circ$ .  
 (e) No, the sum of two acute angles is always less than  $180^\circ$ .
- (a) Yes, for example,  $120^\circ + 120^\circ = 240^\circ$  (a reflex angle)  
 (b) No,  $180^\circ + 180^\circ = 360^\circ$ , if one angle is less than  $180^\circ$  (an obtuse angle) then the other one must be greater than  $180^\circ$  to get the sum  $360^\circ$ .

**Practice Time 2G**

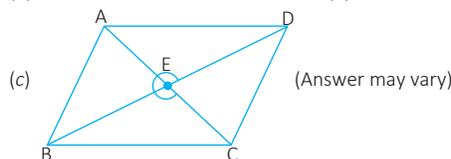
- (a) A, M, N V, W, Z (b) K, X, Y (c) I

**Mental Maths (Page 56)**

- No
- 10;  $\overline{AB}$ ,  $\overline{BC}$ ,  $\overline{CD}$ ,  $\overline{DE}$ ,  $\overline{AC}$ ,  $\overline{AD}$ ,  $\overline{AE}$ ,  $\overline{BD}$ ,  $\overline{BE}$ ,  $\overline{CE}$
- Never
- $45^\circ$
- Infinitely many
- Right angle

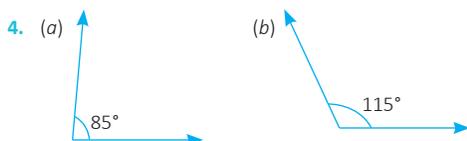
**Chapter Assessment**

- A.** 1. (a) 2. (b) 3. (d) 4. (c) 5. (a)  
 6. (d) 7. (d) 8. (b) 9. (b) 10. (b)
- B.** 1. (d) 2. (a) 3. (d)
- C.** 1. one 2. definite 3. parallel 4. acute 5. two  
 6. reflex 7.  $90^\circ$
- D.** 1. True 2. False 3. False 4. False 5. True  
 6. False
- E.** 1. 5 2. 6
5. (a)  $\angle AEB, \angle DEC, \angle BAE, \angle EDC$  (b)  $\angle AED, \angle BEC$

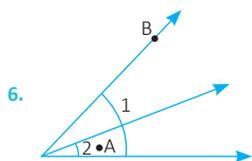


**Unit Test - 1**

- A.** 1. (d) 2. (c) 3. (b) 4. (c) 5. (c)  
 6. (b) 7. (d) 8. (c) 9. (c) 10. (a)
- B.** 1. 343 2.  $90^\circ$  3. two 4. pentagonal  
 5. Virahanka
- C.** 1. T 2. F 3. F 4. F 5. F
- D.** 1.  $\angle A = 144^\circ, \angle B = 36^\circ$  2. (a) 27, 45 (b) 36, 27  
 3. 3 right angles



5.  $1 + 3 + 5 + 7 + 9 = 25 = 5 \times 5$   
 $1 + 3 + 5 + 7 + 9 + 11 = 36 = 6 \times 6$



6. 7. 50 ; 65
8. (a)  $\angle PQR$  (b)  $\angle MQR$  and  $\angle PQN$  (c)  $\angle NQM$

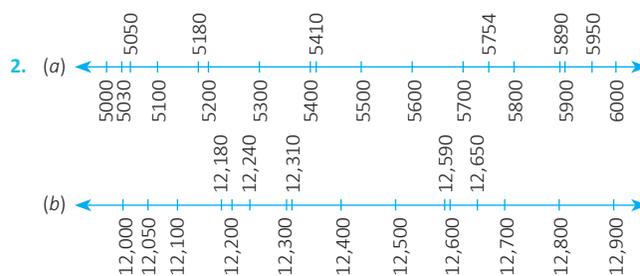
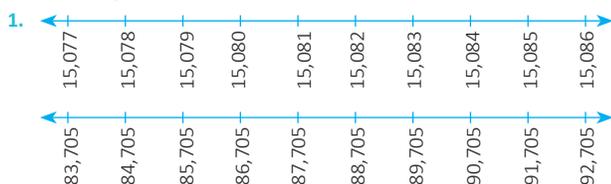
**Chapter 3: Number Play**

**Let's Recall**

- Expanded form of 27859 = 20000 + 7000 + 800 + 50 + 9
- Five numbers that can be estimated to 5,30,000 is 5,30,003; 5,29,999; 5,30,456; 5,29,896; 5,29,870 (Answer may vary)
- 93 runs
- Total number of balls in 20 overs in an innings = 120.
- Yes, the number reads the same forward and backwards. Three other such numbers are 11, 121, 99.



**Fast Check (Page 70)**



**Fast Check (Page 70)**

Area of Meghalaya (22, 429 sq. km) > Area of Manipur (22, 327 sq. km)

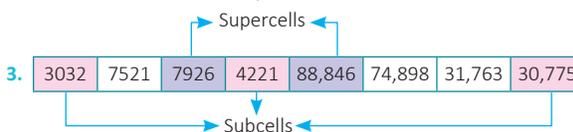
**Think Tank (Page 71)**

1. 

4352	4452	3500	3683	3452	3600	6300	6071	1200	1251
------	------	------	------	------	------	------	------	------	------
2. Yes, the cell with the largest number in a table will always be a supercell, while the cell with the smallest number will never be a supercell, since its adjacent numbers are bigger.

**Maths Connect (Page 72)**

- The largest planet is Jupiter with a diameter of 88,846 miles and the smallest planet is Mercury with a diameter of 3032 miles.
- Mercury - 3032 miles; Mars - 4221 miles; Venus - 7521 miles; Earth - 7926 miles; Neptune - 30,775 miles; Uranus - 31,763 miles; Saturn - 74,898 miles; Jupiter - 88,846 miles



**Practice Time 3A**

- |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|
| 200 | 577 | 626 | 345 | 694 | 109 | 198 |
|-----|-----|-----|-----|-----|-----|-----|
- |      |     |      |      |      |      |      |      |    |
|------|-----|------|------|------|------|------|------|----|
| 6828 | 670 | 9435 | 3780 | 3708 | 7308 | 8000 | 5583 | 52 |
|------|-----|------|------|------|------|------|------|----|
- |    |    |    |    |    |     |    |
|----|----|----|----|----|-----|----|
| 43 | 76 | 67 | 28 | 69 | 109 | 18 |
|----|----|----|----|----|-----|----|
- |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|----|----|----|----|----|----|----|----|----|----|

Here, only 1 supercell (Blue) and 1 subcell (Red) is possible. (Answer may vary)

5. 

40,007	77,400	70,400	40,700
47,700	40,070	47,000	74,000
74,400	74,004	70,740	70,004
47,070	47,770	70,744	40,777

6. 

12	11	13	14	15	16	17	18	19	20
----	----	----	----	----	----	----	----	----	----
- Second smallest number (a supercell)      Second largest number (not a subcell)

7. No

2	16	13	3
11	5	8	10
7	9	12	6
14	4	1	15

Supercell

2	16	13	3
11	5	8	10
7	9	12	6
14	4	1	15

Subcell

11	24	7	20	3
4	12	25	8	16
17	5	13	21	9
10	18	1	14	22
23	6	19	2	15

Supercell

11	24	7	20	3
4	12	25	8	16
17	5	13	21	9
10	18	1	14	22
23	6	19	2	15

Subcell



### Challenge Question (Page 94)

- The numbers written in the diagram are in Collatz sequence.
- 7 steps
- 20 steps
- If Sunita starts from 13 and Lalita starts from 21, then Lalita will reach 1 in fewer steps. (Answer may vary)

### Chapter 4: Data Handling and Presentation

#### Let's Recall

Blood Group	O <sup>+</sup>	O <sup>-</sup>	A <sup>+</sup>	A <sup>-</sup>	B <sup>+</sup>	B <sup>-</sup>	AB <sup>+</sup>	AB <sup>-</sup>
Number of Students	11	8	10	10	7	8	1	5

- O<sup>+</sup>
- AB<sup>+</sup>
- 8 students

#### Maths Connect (Page 97)

**USA:** Bronze – 42      **People's Republic of China:** Silver – 27  
**Japan:** Total – 45      **Australia:** Gold – 18      **France:** Silver – 26

- Japan, Australia
- Japan
- France
- 100

#### Practice Time 4A

- | Ice cream flavours | Tally marks | Number of children |
|--------------------|-------------|--------------------|
| Vanilla            |             | 6                  |
| Chocolate          |             | 9                  |
| Strawberry         |             | 4                  |
| Mango              |             | 6                  |

(b) Chocolate

- | Observations (Shoe size) | Tally marks | Frequency (Number of children) |
|--------------------------|-------------|--------------------------------|
| 4                        |             | 7                              |
| 5                        |             | 8                              |
| 6                        |             | 4                              |
| 7                        |             | 7                              |
| 8                        |             | 4                              |

Thus, shoe size 5 is the most frequent.

- | Family size | Tally marks | Frequency (Number of families) |
|-------------|-------------|--------------------------------|
| 1           |             | 6                              |
| 2           |             | 9                              |
| 3           |             | 5                              |
| 4           |             | 3                              |
| 6           |             | 2                              |

- (a) 1      (b) 6 families      (c) 2

- | Marks | Tally marks | Frequency |
|-------|-------------|-----------|
| 60    |             | 5         |
| 65    |             | 3         |
| 70    |             | 6         |
| 80    |             | 5         |
| 85    |             | 2         |
| 90    |             | 3         |
| 100   |             | 1         |

- (a) 100      (b) 14 students  
 (c) 11 students      (d) 25 students

#### Practice Time 4B

- (a) 100 stamps      (b) Jaya      (c) 640 stamps
- (a) 2021, 10,000 cars      (b) 2023  
 (c) 24,000 cars      (d) 92,000 cars

- | Activity           | Number of students |
|--------------------|--------------------|
| Playing            |                    |
| Reading storybooks |                    |
| Watching TV        |                    |
| Listening to music |                    |
| Painting           |                    |

**Key:** = 10 students, = 5 students

- | Years | Number of employees |
|-------|---------------------|
| 2016  |                     |
| 2017  |                     |
| 2018  |                     |
| 2019  |                     |
| 2020  |                     |

**Key:** = 50 employees and = 25 employees

(a) 2019, 13 symbols

(b) 53 symbols and 2 half symbols

- | Village | Number of animals |
|---------|-------------------|
| A       |                   |
| B       |                   |
| C       |                   |
| D       |                   |
| E       |                   |
| F       |                   |

**Key:** = 10 animals

(a) 7 symbols

(b) Village B

- | Colour of scooters | Number of scooters |
|--------------------|--------------------|
| Black              |                    |
| White              |                    |
| Red                |                    |
| Pink               |                    |
| Green              |                    |

**Key:** = 4 scooters

7. (a)

Year	Number of students
2014	
2016	
2018	
2020	
2022	
2024	

Key: = 100 students and = 50 students

- (i)  $8\frac{1}{2}$  symbols (ii) 8

(b)

Year	Number of students
2014	
2016	
2018	
2020	
2022	
2024	

Key: = 50 students

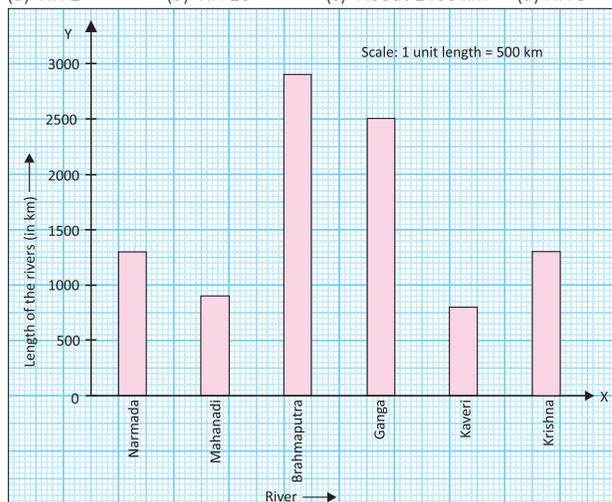
The second pictograph is more informative because it is more precise to the actual number of students.

**Think Tank (Page 112)**

1. LPG      2. Kerosene      3. 10 houses      4. 25,000 houses

**Practice Time 4C**

1. (a) Delhi (b) Chennai  
 (c) Patna, Jaipur, Delhi and Guwahati (d) 50  
 (e) 290
2. (a) 700 students (b) 75 students  
 (c) Reading books (d) 500 students
3. (a) NH 2 (b) NH 10 (c) About 1400 km (d) NH 3
- 4.



- (a) Tree (b) Creeper

**Challenge Question (Page 119)**

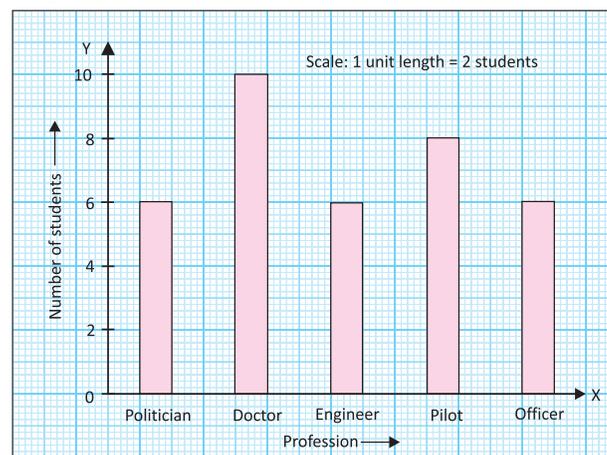
Profession	Tally marks	Frequency (Number of students)
Politician		6
Doctor		10
Engineer		6
Pilot		8
Officer		6
<b>Total</b>		<b>36</b>

Pictograph :

Profession	Number of students
Politician	
Doctor	
Engineer	
Pilot	
Officer	

Key: 1 = 1 student

Bar graph :



**Chapter Assessment**

- A. 1. (d)      2. (d)      3. (d)      4. (c)      5. (d)  
 B. 1. raw      2. frequency      3.   
 4. frequency distribution table      5. pictograph

- C. 1. True 2. False 3. False 4. True 5. False

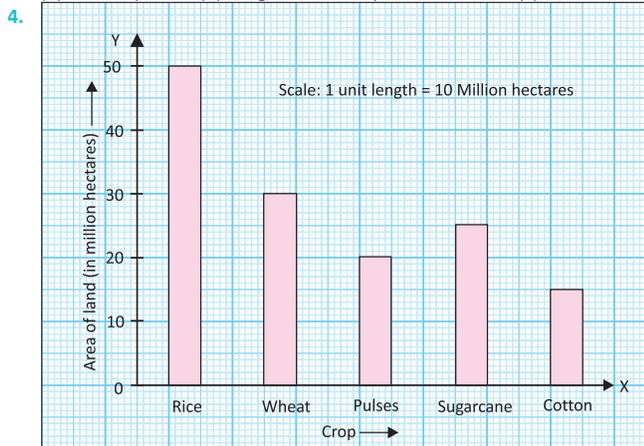
Marks obtained	Tally marks	Number of students
10		1
15		2
19		5
20		4
24		6
25		6
30		6
<b>Total</b>		<b>30</b>

- (a) 6 students (b) 22 students (c) 21 students

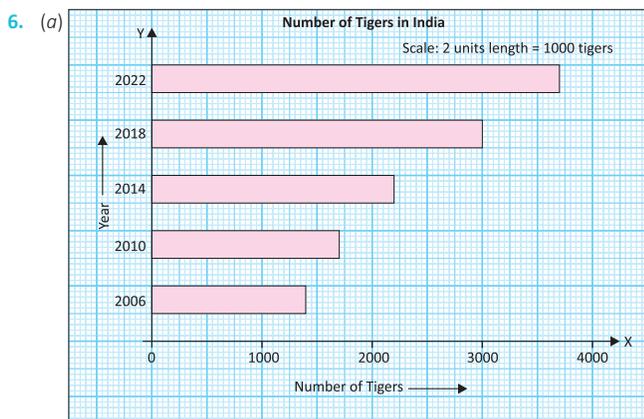
Modes of transport	Number of students
Car	
Cycle	
Private Van	
School Bus	
Walking	

Key: = 50 students and = 25 students

3. (a) 6000 sq. km (b) Raigarh and Jashpur (c) 4 districts



5. ₹2,65,000

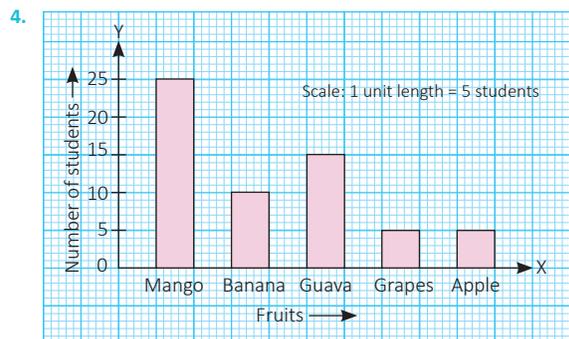


- (b) 2014–2018  
 (c) more than two and a half times.

7. Maximum variation = 19th Oct. 2024  
 Minimum variation = 11th Oct. 2024

**Unit Test – 2**

- A. 1. (c) 2. (a) 3. (d) 4. (a) 5. (c)  
 6. (b) 7. (d) 8. (d) 9. (b) 10. (d)  
 B. 1. 7 2. 90 3. frequency 4. pictorial  
 5. raw or primary  
 C. 1. T 2. T 3. F 4. F 5. T  
 D. 2. No 3. (a) 80 (b) 200 (c) 64000



5. (a) 270 (b) 50 (c) Watching movies  
 6. (a) 6 students (b) 33 students  
 7. 4 km  
 8.  $99995421 + 11112459 = 111107880$ ,  $99995421 - 11112459 = 88882962$

**Chapter 5: Prime Time**

**Let's Recall**

2. 8, 4

No. of spiders	Legs	No. of deer	Legs
2	16	3	12
3	24	4	16
4	32	5	20
6	48	8	32
9	72	10	40

3. **Blue:** 5, 10, 15, 20, 25, 30, 35, 40, 45, 50  
**Red:** 7, 14, 21, 28, 35, 42, 49  
**Green:** 11, 22, 33, 44

**Fast Check (Page 128)**

1. 4 2. 8 3. 4 4. 12

**Practice Time 5A**

1. (a) 1, 2, 3, 6, 9, 18  
 (b) 1, 2, 4, 5, 8, 10, 20, 40  
 (c) 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84  
 (d) 1, 3, 5, 9, 15, 27, 45, 135  
 2. (a) 10, 20, 30, 40, 50 (b) 13, 26, 39, 52, 65  
 (c) 19, 38, 57, 76, 95 (d) 27, 54, 81, 108, 135  
 3. (a)-(ii) (b)-(iv) (c)-(v) (d)-(iii) (e)-(i)  
 4. 36, 40, 44, 48, 52, 56  
 5. (a)  $12 \times 5$ ,  $20 \times 3$  (b)  $6 \times 4$ ,  $12 \times 2$

**Think Tank (Page 131)**

1. 48  
 2. (a) 20 (b) 14 (c) 18  
 3. (d)

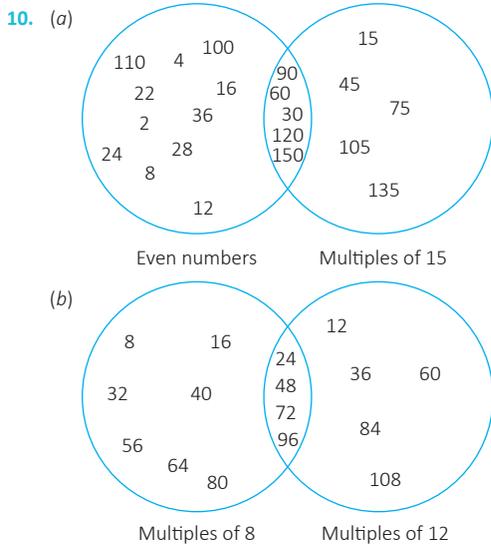
**Fast Check (Page 132)**

- 2 (1, 7)

**Practice Time 5B**

1. (a) 35 (b) 15 (c) 90 (d) 6  
 2. 34, 68, 102, 136, 170  
 3. (a) 7, 21, 63, 70, 77 (b) 12, 36 (c) 12, 36, 80

4. (a) 3 (b) 3, 5, 15, 30 (c) 3 (d) 24, 30  
 5. Even (Multiples of 3): 6, 12, 18, 24, 30  
 Even (Not a multiple of 3): 2, 8, 32  
 Odd (Multiples of 5): 15, 35  
 Odd (Not a multiple of 5): 1, 3, 11, 39  
 6. 24 seconds  
 7. (a) 1 (b) 12, 24 and 36 (c) 3 (d) 2  
 (e) remainder  
 8. (a) yellow: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 36, 42, 45, 48, 54, 60, 63, 72, 81, 90 (b) Even numbers: 64, 70, 72  
 (c) Red: 7, 14, 21, 28, 35, 42, 49, 56, 63, 70  
 (d) No (e) Yes (f) No  
 (g) Green: 5, 10, 15, 20, 25, 30, 35, 40  
 (h) 1 (i) 56 (j) Crossed numbers: 27, 35, 45, 49  
 9. (a) 1, 2, 4 (b) 1, 5 (c) 1, 5 (d) 1, 3



11. (7, 8) (Answers may vary)

**Think Tank (Page 136)**

1. 2 (Even) 2. 4 (Even)  
 3. 15; These are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47.  
 4. No, for example, 6 has more factors than 9.

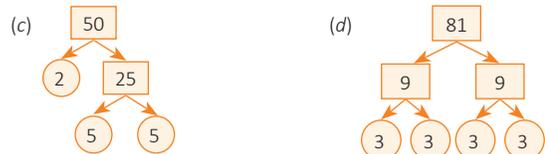
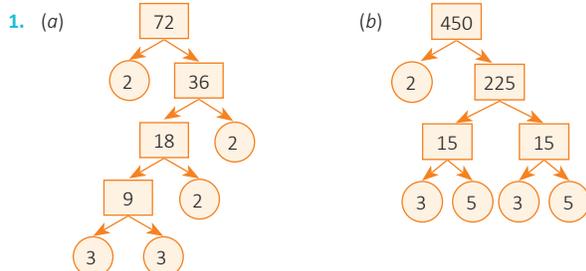
**Practice Time 5C**

1. (a) F (b) T (c) T (d) F  
 (e) F (f) T (g) F (h) F  
 2. 10; These are 53, 59, 61, 67, 71, 73, 79, 83, 89, 97  
 3. (a) Yes (b) Yes (c) No (d) Yes  
 4. (3, 5), (5, 7), (11, 13), (17, 19), (29, 31), (41, 43), (59, 61), (71, 73).  
 5. (3, 7), (3, 11), (3, 19) (Answers may vary)  
 6. (a) Yes,  $3 + 3 + 7 = 13$ ,  $5 + 7 + 11 = 23$  (Answer may vary)  
 (b) No.  
 7. 101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199.  
 8. One – 523

**Think Tank (Page 138)**

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

**Practice Time 5D**



2. (a)  $105 = 3 \times 5 \times 7$  (b)  $1728 = 2 \times 3 \times 3 \times 3$   
 (c)  $1024 = 2 \times 2$   
 (d)  $729 = 3 \times 3 \times 3 \times 3 \times 3 \times 3$   
 3. (a)  $3 \times 47$  (b)  $2 \times 2 \times 2 \times 5 \times 5 \times 5$   
 (c)  $11 \times 11 \times 11$  (d)  $5 \times 5 \times 5 \times 5$   
 4. (a)  $30 = 2 \times 3 \times 5$  (b)  $2310 = 2 \times 3 \times 5 \times 7 \times 11$   
 5. (a) Yes (b) No (c) No (d) No

**Think Tank (Page 143)**

1324

**Think Tank (Page 145)**

String gap = 3; (3, 10) is a pair of co-primes

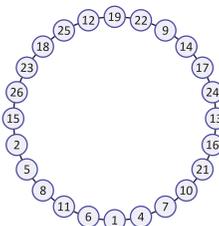
**Practice Time 5E**

1. (a) No (b) Yes (c) No (d) Yes  
 2. (a) No (b) No (c) Yes (d) Yes  
 3.

Number	Digit Total	Divisible By									
		2	3	4	5	6	7	8	9	10	11
27	$2 + 7 = 9$	No	Yes	No	No	No	No	No	Yes	No	No
74	$7 + 4 = 11$	Yes	No								
132	$1 + 3 + 2 = 6$	Yes	Yes	Yes	No	Yes	No	No	No	No	Yes
165	$1 + 6 + 5 = 12$	No	Yes	No	Yes	No	No	No	No	No	Yes
184	$1 + 8 + 4 = 13$	Yes	No	Yes	No	No	No	Yes	No	No	No
207	$2 + 0 + 7 = 9$	No	Yes	No	No	No	No	No	Yes	No	No
280	$2 + 8 + 0 = 10$	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	No
131	$1 + 3 + 1 = 5$	No	No	No	No	No	No	No	No	No	No
506	$5 + 0 + 6 = 11$	Yes	No	Yes							
283	$2 + 8 + 3 = 13$	No	No	No	No	No	No	No	No	No	No
147	$1 + 4 + 7 = 12$	No	Yes	No	No	No	Yes	No	No	No	No
385	$3 + 8 + 5 = 16$	No	No	No	Yes	No	Yes	No	No	No	Yes
250	$2 + 5 + 0 = 7$	Yes	No	No	Yes	No	No	No	No	Yes	No
477	$4 + 7 + 7 = 18$	No	Yes	No	No	No	No	No	Yes	No	No
824	$8 + 2 + 4 = 14$	Yes	No	Yes	No	No	No	Yes	No	No	No
753	$7 + 5 + 3 = 15$	No	Yes	No							
1325	$1 + 3 + 2 + 5 = 11$	No	No	No	Yes	No	No	No	No	No	No

4. (c) 46,938  
 5. (a) Yes (b) No (c) No (d) Yes (e) Yes (f) No  
 6. (a) Yes (b) No (c) Yes (d) Yes  
 7. (a)  $48 = 5 + 43$  (b)  $64 = 11 + 53$   
 (c)  $96 = 7 + 89$  (Answers may vary)  
 8. (a)  $27 = 3 + 5 + 19$  (b)  $41 = 3 + 7 + 31$   
 (c)  $63 = 3 + 7 + 53$  (Answers may vary)  
 9. (a)  $36 = 17 + 19$  (b)  $84 = 41 + 43$

10.



11. (a) – (iv) (b) – (i) (c) – (ii) (d) – (iii)  
 12. (a) Prime number (b) Composite number  
 (c) Composite number (d) Composite number  
 13. 175662 15. (a) 928389 (b) 819489

**Fast Check (Page 149)**

1. (a) 8 (b) 24 2. (a) 1 (b) 2 (c) 1

**Think Tank (Page 151)**

1152

**Fast Check (Page 152)**

1. 5 2. 150

**Practice Time 5F**

1. (a) 2 (b) 2 (c) 2  
 2. (a) 4 (b) 12 (c) 1 (d) 79  
 3. (a) 84 (b) 90 (c) 336  
 4. (a) 240 (b) 180 (c) 12626  
 5. 9:12 a.m. 6. 31 cm 7. 158 8. 1540 9. 12 minutes  
 10. 3 packs of bread, 5 trays of eggs

**Mental Maths (Page 153)**

1. 9 2. 97 3. 10 4. 8 5. 2 6. 4

**Challenge Question (Page 153)**

1.  $11 \times 11 = 121$ ,  $3 \times 7 \times 11 \times 13 = 3003$ ,  $2 \times 7 \times 11 \times 13 = 2002$ ,  $2 \times 17 \times 19 = 646$ ,  $3 \times 17 \times 19 = 969$  (Answers may vary)  
 2. 89, 233 3. 1 4. 3, 18 5. No

**Life Skills (Page 153)**

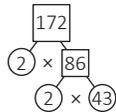
1. 7 rows of 5 people each or 5 rows of 7 people each 2. (b)  
 3. No, because the money collected is less than the required money for the mentioned number of photographs.

**Chapter Assessment**

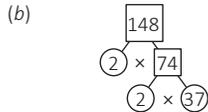
- A. 1. (c) 2. (d) 3. (b) 4. (a) 5. (d)  
 6. (c) 7. (c)  
 B. 1. (a) 2. (b) 3. (d)  
 C. 1. 39 2. 2 3. product 4. 5 5. 15  
 D. 1. F 2. T 3. F 4. T 5. F  
 E. 1. 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97  
 2. (a)  $44 = 3 + 41$  or  $7 + 37$  (b)  $50 = 3 + 47$  or  $19 + 31$   
 (c)  $64 = 3 + 61$  or  $5 + 59$  (d)  $88 = 5 + 83$  or  $17 + 71$   
 (Answers may vary)  
 3. (a)  $63 = 3 + 29 + 31$  (b)  $79 = 3 + 5 + 71$  (c)  $15 = 3 + 5 + 7$   
 (d)  $31 = 7 + 11 + 13$  (Answers may vary)  
 4. (a) 1, 3, 5, 15 (b) 1, 2 (c) 1, 2, 3, 6  
 5. (a) 30, 60, 90, 120, 150 (b) 60, 120, 180, 240, 300  
 (c) 35, 70, 105, 140, 175 (d) 120, 240, 360, 480, 600  
 6. (a)  $24 = 2 \times 2 \times 2 \times 3$  (b)  $364 = 2 \times 2 \times 7 \times 13$   
 (c)  $1000 = 2 \times 2 \times 2 \times 5 \times 5 \times 5$  (d)  $162 = 2 \times 3 \times 3 \times 3 \times 3$   
 7. 37 (2 + 30 + 5)  
 8. (13, 31), (17, 71), (37, 73), (79, 97); 4  
 9. 12 10. 1 11. (a) 18 (b) 25 12. 6

**Model Test Paper – 1**

- A. 1. (d) 2. (d) 3. (c) 4. (a) 5. (b)  
 6. (d) 7. (b) 8. (c) 9. (a) 10. (c)  
 B. 1. 36 2. coplanar 3. palindromic  
 4. five 5. 19  
 C. 1. F 2. T 3. T 4. F 5. T  
 D. 1. (a)

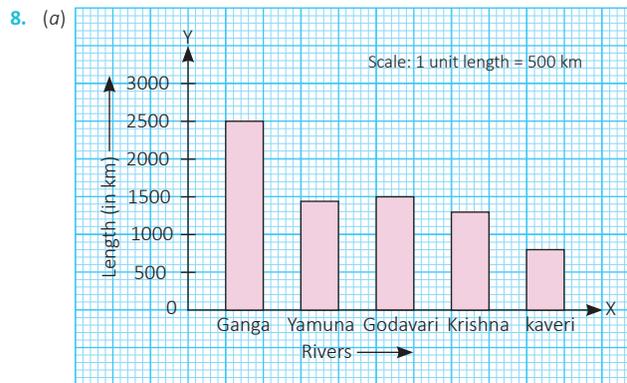


Prime factorisation of 172  
 $= 2 \times 2 \times 43$



Prime factorisation of 148  
 $= 2 \times 2 \times 37$

2. 81 litres  
 3. (a) T is the mid point of side PS.  
 N is the mid point of side QR.  
 L is the mid point of side PQ.  
 (b)  $l$  is the bisector of line PQ.  
 $m$  is the bisector of line QR.  
 $n$  is the bisector of line PS.  
 4. 6336 5. (a) 1 (b) 8  
 6. (a) 2024 ; 16 symbols (b) 45 symbols  
 7. 12



- (b) 1700 km  
 (c) 808,818,828

**Chapter 6: Perimeter and Area**

**Let's Recall**

1. (a) Perimeter (b) Perimeter (c) Area (d) Area  
 (e) Perimeter (f) Area

2.	(a)	(b)	(c)	(d)	(e)
Perimeter (Units)	16	18	14	26	30
Area (Sq. units)	12	16	8	17	14

**Fast Check (Page 163)**

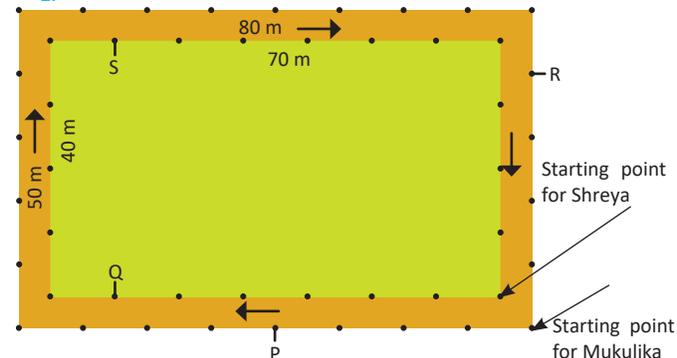
1. 205 m 2. 40 m

**Think Tank (Page 165)**

40 cm

**Think Tank (Page 166)**

1. Shreya, by 280 m.  
 2.



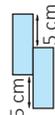
- (c) Mukulika finished 3 full rounds.  
 Shreya finished 4 full rounds.

**Practice Time 6A**

1. (a) 52 cm (b) 88 cm  
 2. (a) 60 cm (b) 44 m  
 3. (a) 30 cm (b) 36 cm (c) 26 cm (d) 102 cm  
 4. (a) 54 cm (b) 60 cm (c) 45 cm (d) 48 cm  
 The square with a side of 15 cm has the largest perimeter.  
 5. 8 m 80 cm 6. 8 m 7. Fencing a square field; ₹100  
 8. ₹7200 9. (a) 14 cm (b) 6 cm  
 10. Breadth = 13 m 11. 324 m

**Activity (Page 168)**

1. (a) 42 cm (b) 36 cm (c) 42 cm (d) 42 cm (e) 46 cm  
 2.



**Practice Time 6B**

- (a) 16 sq. cm (b) 20 sq. cm (c) 16 sq. cm (d) 8 sq. cm  
 (e)  $11\frac{1}{2}$  sq. cm (f) 9 sq. cm (g) 9 sq. cm (h) 12 sq. cm
- (a) Area = 12 sq. cm; Perimeter = 22 cm  
 (b) Area = 16 sq. cm; Perimeter = 32 cm
- 27 sq. cm

**Fast Check (Page 171)**

- 120 sq. cm.
- 144 sq. cm.

**Practice Time 6C**

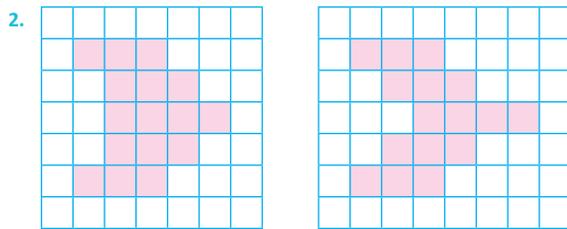
- 90 sq. cm
- 3600 sq. m
- 60 carpets
- 25 tiles
- 5000 sq. m
- 19 sq. m
- ₹22,000
- 6 sq. m
- 110 m
- 72 tiles
- 16 cm
- Area becomes four times.
- (a) 480 tiles (b) 64 tiles
- (a) Perimeter = 104 cm; Area = 192 sq. cm  
 (b) Perimeter = 48 cm; Area = 63 sq. cm

**Fast Check (Page 177)**

- 12 sq. units
  - 18 sq. units
  - 15 sq. units
- Figure 2 has the greatest area.

**Think Tank (Page 177)**

- Both are possible upon the placement.



**Practice Time 6D**

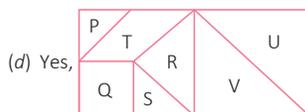
- 38 sq. units
- 1 cm × 98 cm; 2 cm × 49 cm; 7 cm × 14 cm
- 16 cm
- (a) Toilet: (6 ft × 12 ft) ⇒ Area = 72 sq. ft  
 Utility: (17 ft × 3 ft) ⇒ Area = 51 sq. ft  
 Small Bedroom: (17 ft × 14 ft) ⇒ Area = 238 sq. ft  
 Garden: (23 ft × 4 ft) ⇒ Area = 92 sq. ft  
 Parking: (17 ft × 4 ft) ⇒ Area = 68 sq. ft  
 Hall: (23 ft × 14 ft + 6 ft × 5 ft) ⇒ Area = 352 sq. ft  
 (b) 1400 sq. ft

**Create and Solve (Page 180)**

- |   |   |   |
|---|---|---|
| B | C | H |
| I | A | E |
| D | G | F |
- |        |        |       |
|--------|--------|-------|
| 2 × 7  | 4 × 4  | 3 × 6 |
| 1 × 9  | 2 × 8  | 5 × 5 |
| 1 × 15 | 1 × 16 | 3 × 8 |

**Practice Time 6E**

- (a) 10 sq. units (b) 11 sq. units (c) 10 sq. units (d) 12 sq. units  
 (e)  $8\frac{1}{2}$  sq. units
- (a) 5 sq. units (b) 4 sq. units (c) 8 sq. units
- (a) 8 sq. units (b) 7 sq. units (c) 6 sq. units
- (a) P = 4 sq. units; Q = 8 sq. units; R = 8 sq. units; S = 4 sq. units;  
 T = 8 sq. units; U = 16 sq. units; V = 16 sq. units  
 (b) Q, R, T; P, S; U, V; Yes  
 (c) P = 4s + 4d; Q = 8d; R = 8s + 4d; S = 4s + 4d; T = 8s + 4d;  
 U = 8s + 8d; V = 8s + 8d



**Mental Maths (Page 184)**

- 12,500 sq. cm
- ₹20,000
- 15 cm
- 1920 m
- 6000 sq. m
- (a) 5 cm (b) 16 sq. cm

**Challenge Question (Page 185)**

- 48 sq. m

**Chapter Assessment**

- A. 1. (b) 2. (c) 3. (c) 4. (a) 5. (b)  
 B. 1. (a) 2. (c)  
 C. 1. True 2. True 3. False 4. False  
 D. 1. → (d) → (ii) 2. → (c) → (i)  
 3. → (b) → (iv) 4. → (a) → (iii)  
 E. 1. 100 slabs 2. 1400 sq. m 3. ₹10,800  
 4. 25 sheets 5. 2400 sq. m  
 6. 160 tiles 7. ₹16,800  
 8. (a) 30 sq. units (b)  $49\frac{1}{2}$  sq. units

**Chapter 7: Fractions**

**Let's Recall**

- (b)
- (a)  $\frac{5}{8}$  (b)  $\frac{2}{4}$  (c)  $\frac{4}{8}$  (d)  $\frac{2}{3}$
- (c)
- (a)  $\frac{5}{17}$  (b)  $\frac{4}{9}$  (c)  $\frac{3}{8}$

**Practice Time 7A**

- (i) (d) (ii) (a) (iii) (c) (iv) (d)
- $\frac{12}{29}, \frac{15}{29}, \frac{30}{29}, \frac{35}{29}, \frac{40}{29}$  (Answers may vary)
- (a)  $\frac{8}{5}$  (b)  $\frac{19}{8}$  (c)  $\frac{107}{19}$  (d)  $\frac{71}{13}$
- (a)  $1\frac{7}{8}$  (b)  $6\frac{1}{7}$  (c)  $9\frac{2}{13}$  (d)  $15\frac{1}{9}$
- ₹20  $\frac{9}{100}$  7. (a)  $\frac{72}{120}$  (b)  $\frac{75}{120}$  (c)  $\frac{27}{120}$

**Think Tank (Page 197)**

$$\frac{70}{18}$$

**Practice Time 7B**

- (a)  $\frac{1}{3}$  (b)  $\frac{2}{6}$  (c)  $\frac{3}{9}$ ; Yes all these fractions are equivalent.
- (a)  $\frac{5}{6} = \frac{10}{12} = \frac{15}{18} = \frac{20}{24} = \frac{25}{30}$  (b)  $\frac{3}{8} = \frac{6}{16} = \frac{9}{24} = \frac{12}{32} = \frac{15}{40}$   
 (c)  $\frac{9}{13} = \frac{18}{26} = \frac{27}{39} = \frac{36}{52} = \frac{45}{65}$   
 (d)  $\frac{30}{90} = \frac{15}{45} = \frac{10}{30} = \frac{5}{15} = \frac{1}{3}$  (Answers may vary)
- (a)  $\frac{60}{144}$  (b)  $\frac{5}{12}$  (c)  $\frac{120}{288}$  (d)  $\frac{10}{24}$
- (a) Yes (b) Yes (c) No
- (a)  $\frac{1}{13}$  (b)  $\frac{6}{7}$  (c)  $\frac{7}{11}$  (d)  $\frac{42}{85}$
- (a) 27 (b) 18 (c) 5 and 80
- (i) (b) (ii) (d)

**Fast Check (Page 198)**

$$\frac{3}{11} < \frac{4}{11} < \frac{7}{11} < \frac{9}{11}$$

**Practice Time 7C**

- (a) < (b) > (c) < (d) < (e) > (f) <
- (a)  $\frac{5}{9}$  (b)  $\frac{5}{3}$  (c)  $3\frac{3}{4}$
- (a)  $\frac{3}{8} < \frac{5}{8} < \frac{7}{8} < \frac{13}{8}$  (b)  $\frac{9}{17} < \frac{9}{7} < \frac{9}{5} < \frac{9}{4}$  (c)  $\frac{1}{7} < \frac{12}{63} < \frac{3}{8} < \frac{13}{23}$

4. (a)  $\frac{2}{7} > \frac{2}{9} > \frac{2}{15} > \frac{2}{30}$  (b)  $\frac{2}{7} > \frac{5}{21} > \frac{8}{49} > \frac{3}{42}$  (c)  $\frac{7}{8} > \frac{6}{7} > \frac{4}{5} > \frac{3}{4}$

5. On the second day.

**Fast Check (Page 201)**

	+	
-	+	+
$\frac{9}{14}$	$\frac{8}{16}$	$\frac{8}{7}$
$\frac{1}{4}$	$\frac{2}{5}$	$\frac{13}{20}$
$\frac{11}{28}$	$\frac{1}{10}$	$\frac{69}{140}$

**Practice Time 7D**

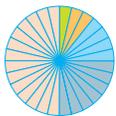
- (a)  $\frac{28}{45}$  (b) 4 (c)  $4\frac{7}{15}$
- (a)  $\frac{4}{48}$  or  $\frac{1}{12}$  (b)  $4\frac{1}{14}$  (c)  $1\frac{19}{24}$
- (a)  $\frac{11}{12}$  (b)  $1\frac{19}{45}$  (c)  $5\frac{2}{7}$  4.  $5\frac{2}{5}$
- $1\frac{3}{4}$  m 6.  $\frac{1}{6}$  7. Wheat bag,  $2\frac{13}{20}$  kg

**Challenge Question (Page 203)**

(a)  $1 = \frac{1}{6} + \frac{1}{3} + \frac{1}{2}$



(b)  $1 = \frac{1}{28} + \frac{1}{14} + \frac{1}{7} + \frac{1}{4} + \frac{1}{2}$



[Hint: Use the perfect numbers, as  $6 = 1 + 2 + 3$ , divide both sides by 6; and  $28 = 1 + 2 + 4 + 7 + 14$ , divide both sides by 28]

**Chapter Assessment**

- A. 1. (c) 2. (a) 3. (b) 4. (b) 5. (d)  
 6. (d) 7. (a) 8. (c)
- B. 1. (a) 2. (b) 3. (d) 4. (a)
- C. 1. F 2. T 3. F 4. T
- D. 1.  $\frac{4}{15}$   
 2. Paakhi,  $\frac{1}{35}$  of the donut 3.  $\frac{2}{5}$   
 4. 5 km, yes, it is less than 6 km 5.  $3\frac{11}{12}$  m  
 6.  $52\frac{11}{15}$  kg 7. 64 parts 8.  $2\frac{23}{30}$  hours

**Unit Test – 3**

- A. 1. (b) 2. (d) 3. (c) 4. (b) 5. (c)  
 6. (a) 7. (c) 8. (d) 9. (a) 10. (c)
- B. 1. 10 2. 9 sq. cm 3. bhinna  
 4.  $\frac{3}{4}$  5.  $\frac{3}{40}$
- C. 1. F 2. T 3. T 4. F 5. F
- D. 1. 399 sq. cm 2. 20 sq. units 3.  $\frac{1}{6}, \frac{2}{5}, \frac{4}{9}, \frac{3}{4}$   
 4.  $7\frac{89}{140}$  hours 5. Four times 6. 18 m  
 7.  $11\frac{17}{30}$  8. (a)  $\frac{4}{11}$  (b)  $\frac{7}{11}$

**Chapter 8: Playing with Constructions**

**Let's Recall**

2. (a) Bangle (b) Chessboard (c) TV screen (Answer may vary)

**Practice Time 8A**

1. (a) Open curve (b) Closed curve (c) Open curve  
 (d) Closed curve (e) Closed curve
5. (d)

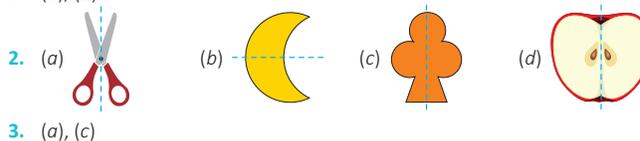
**Chapter Assessment**

- A. 1. (d) 2. (d) 3. (b) 4. (b) 5. (a)  
 6. (c) 7. (d) 8. (b)
- B. 1. (a) 2. (d) 3. (d)
- C. 1. T 2. T 3. F 4. T
- D. 3. Rectangle: A, D, F, G; Square: B, C

**Chapter 9: Symmetry**

**Let's Recall**

1. (b), (d)



**Think Tank (Page 238)**

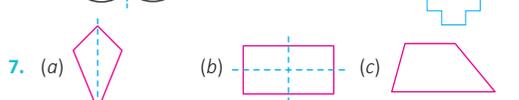
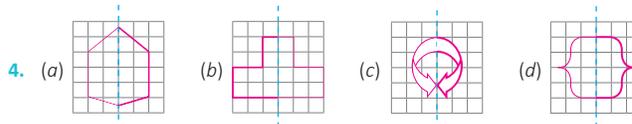
A rhombus has two lines of symmetry because of its unequal angles, allowing symmetry only along the diagonals.  
 A square has four lines of symmetry because all its angles are equal, allowing symmetry along both the diagonals as well as the midpoints of its sides.

**Practice Time 9A**

1. Symmetrical: (a), (e); Asymmetrical: (b), (c), (d)



3. S

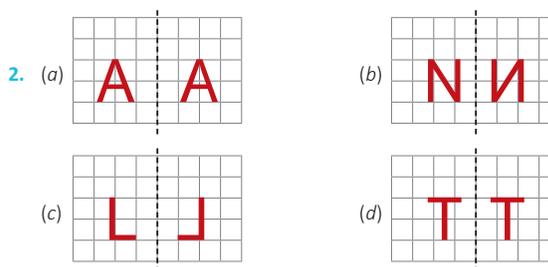


**Think Tank (Page 240)**

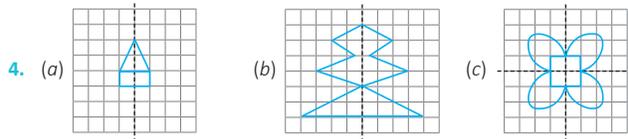
The image will form 2 m away from us. If we move towards the mirror, the image comes closer to us.

**Practice Time 9B**

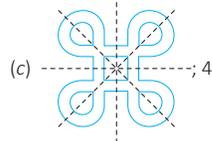
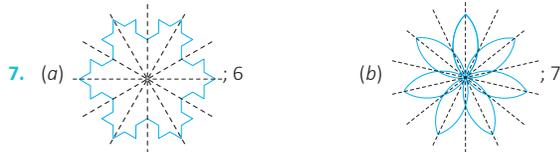
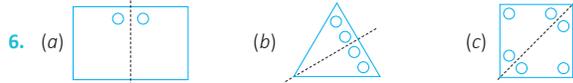
1. (a) → (i) (b) → (i) (c) → (iii)



3. A, H, I, M, O, T, U, V, W, X, Y



**5. CONFUSION**      **ΜΟΙΣΥΝΙΟΣ**  
**MATHEMATICS**    **ΣΩΣΤΗΜΕΤΑΜ**



**Maths Connect (Page 244)**

1. Yes; 3 lines of symmetry.



2. Yes; angles of rotational symmetry 120°, 240°, 360°

**Practice Time 9C**

1. (a) 180°, 360°      (b) 360°      (c) 120°, 240°, 360°

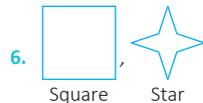
2. I, S

3. (a) 2      (b) 2      (c) 2      (d) 4      (e) 2

(f) 4      (g) 3      (h) 5

4. H, O

5. Yes, 4



6. Square, Star (Answer may vary)

7. Yes

8. Yes, order of rotational symmetry of each letter is 2.

9. (a) 2      (b) 2      (c) 5      (d) 45°

10. 24 lines of symmetry, 24 angles of symmetry

**Practice Time 9E**

1. (b)      2. (c)      3. Square and rhombus

4. No,       5. Octagon, square

6. Pentagon, heptagon, octagon, nonagon, decagon      7. (c)

**Challenge Question (Page 250)**

AMTUVWY08

**Chapter Assessment**

A. 1. (a)      2. (b)      3. (c)      4. (d)      5. (b)

6. (a)      7. (d)      8. (d)      9. (a)      10. (a)

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

C. 1. (d)      2. (a)      3. (e)      4. (b)      5. (c)

D.	Shapes	No. of lines of symmetry	Order of rotational symmetry
1.	Isosceles Triangle	1	1
2.	Square	4	4
3.	Kite	1	1
4.	Equilateral Triangle	3	3
5.	Rectangle	2	2
6.	Regular Hexagon	6	6
7.	Scalene Triangle	0	1

E. 1. H, I, O, X      2. Boy B is correct.

4. H, I, S

5. (a) 2      (b) 1      (c) 5

6. (a)       (b) ; 120°, 240°, 360°

7. (a) 4      (b) 6      (c) 1

9. (a) 4      (b) 6      (c) 5      (d) 8      10. (a), (c)

12. (a) A, T      (b) H, I, N      (c) R, N, G

(d) **ΑΝΙΣΑΡΤΑ ΡΑΝΗ ΓΡΑΗ**

**Unit Test – 4**

A. 1. (c)      2. (c)      3. (b)      4. (c)      5. (d)

6. (b)      7. (c)      8. (b)      9. (d)      10. (a)

B. 1. 9      2. circle      3. 2      4. regular      5. line

C. 1. F      2. T      3. T      4. F      5. T

D. 1. (a) JEWOT      (b) JAWOITAI

2. (a) 120°, 240°, 360°      (b) 60°, 120°, 180°, 240°, 300° and 360°

3. A, P, Q, L, G and J (Answer may vary)

5. (a) 4      (b) 2      (c) 2      (d) 6      6. No

**Chapter 10: The Other Side of Zero**

**Let's Recall**

1. (a) 6746, 2023      (b) 1, 0      (c) below

2. (a) True      (b) True

3. (a) 22      (b) 27      (c) 4      (d) 3

4. (a) below      (b) loss      (c) decrease      (d) going down

(e) negative

**Think Tank (Page 261)**

1. Highest marks: Vaishali, Least marks: Smita

2. Smita

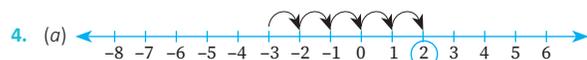
**Practice Time 10A**

1. -142, 254, -7, 0, 547

2. (a) 50 m rise in water level      (b) 9°C above 0°C

(c) Increase in marks      (d) 1899 BCE

3. (a) +12 cm      (b) -₹700      (c) +6 kg      (d) -₹5100



5. (a) F      (b) T      (c) T      (d) T

(e) F      (f) T      (g) F

6. 6



8. P = -46, Q = -40, R = -36, S = -30

9. (a) <      (b) <      (c) <      (d) >

10. (a) -39 < -33 < 0 < 10 < 33      (b) -31 < -21 < -17 < 8 < 15

(c) -10 < -7 < -6 < 8 < 9

11. (a) 3 > 0 > -1 > -3 > -4 > -6      (b) 110 > 58 > 7 > -230 > -330

(c) 25 > 24 > -7 > -24 > -25

12. (a) -24, -25, -26, -27, -28 (Answers may vary)

(b) -2, -1, 0, 1, 2 (Answers may vary)

13. (a) 233      (b) -23      (c) 82

14. 20

15. 15°C

16. -10°C, -6°C, 0°C, 15°C, 38°C, 45°C, 70°C

17. P: +2800 m, Q: -1000 m, R: +600 m, S: -2400 m, T: +2400 m, U: -400 m,

V: +200 m

**Practice Time 10B**

1.	+	-6	-4	-2	0	2	4	6
	6	0	2	4	6	8	10	12
	4	-2	0	2	4	6	8	10
	2	-4	-2	0	2	4	6	8
	0	-6	-4	-2	0	2	4	6
	-2	-8	-6	-4	-2	0	2	4
	-4	-10	-8	-6	-4	-2	0	2
	-6	-12	-10	-8	-6	-4	-2	0

- (a) 6, -6; 4, -4; 2, -2; 0, 0; -2, 2; -4, 4, -6, 6 (b) Yes  
 2. (a) 14 (b) 5 (c) 23  
 3. (a) 27 (b) 55 (c) 12  
 4. (a) -337 (b) -243 (c) -925  
 5. (a) -1 (b) -39 (c) -44  
 6. (a) -2 (b) 0 (c) -5  
 7. (a) left (b) right (c) left  
 8. (a) -17 (b) 357 (c) 0  
 9. (a) T (b) F (c) T (d) F

**Life Skills (Page 269)**

Date	Withdrawal Amount (₹)	Deposit Amount (₹)	Closing Balance (₹)
1.06.2024	—	—	89,000
4.06.2024	—	8000	97,000
10.06.2024	9500	—	87,500
16.06.2024	—	2000	89,500
21.06.2024	950	—	88,550
25.06.2024	1050	—	87,500
29.06.2026	—	1500	89,000

₹ 89,000

**Practice Time 10C**

1. (a) -30 (b) 0 (c) 1133 (d) -558  
 2. (a) 4 (b) 0 (c) -2  
 3. (a) 27 (b) 9 (c) 2 (d) -8  
 (e) 1561 (f) -143  
 4. (a) > (b) < (c) > (d) >  
 5. (a) 84 (b) -8  
 6. (a) 119 (b) -58 (c) -1777 (d) -4396  
 7. (a) -215 (b) 1207 8. 102 9. 10  
 10. 10°C 11. Nilabh 12. lose, 173 calories

**Fast Check (Page 272)**

1. 13 2. -3 3. -4 4. -11  
 5. 5 6. 1 7. -1 8. -1

**Think Tank (Page 273)**

-6	-4	-2
-5		-7
-1	-8	-3

**Practice Time 10D**

1. (a)  $-6 < -5 < -4 < -3 < -2 < -1$

- (b)  $-29 < -28 < -27 < -26 < -25 < -24$   
 (c)  $-14 < -13 < -12 < -11 < -10 < -9$   
 (d)  $-249 < -248 < -247 < -246 < -245 < -244 < -243 < -242 < -241$   
 $< -240 < -239 < -238 < -237 < -236$   
 (e)  $-2 < -1 < 0 < 1 < 2$   
 (f)  $5 < 6 < 7 < 8 < 9 < 10 < 11 < 12 < 13 < 14 < 15$

2. (a) 

-10	-2	16
5		-5
9	2	-7

 (b) 

6	8	-16
11		-5
-19	-2	19

 (c) 

7	-7	-4
-10		-5
-1	-8	5

  
 (Answers may vary)

3. (a) 

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

 (b) 

-5	0	-7
-6	-4	-2
-1	-8	-3

  
 (Answers may vary)

4. -9, -7, -5, 0, 2, 7, 9, 11 5. (a) -1 (b) -8 (c) -14

**Chapter Assessment**

- A. 1. (c) 2. (b) 3. (b) 4. (d) 5. (b)  
 6. (c) 7. (a) 8. (d) 9. (b)  
 B. 1. (a) 2. (d) 3. (a)  
 C. 1. (d) 2. (a) 3. (e) 4. (b) 5. (c)  
 D. 1. F 2. F 3. F 4. T 5. T  
 6. F 7. F  
 E. 1. 161  
 2. (a) 15 floors up.  
 (b) 20 m below the danger mark of river Ganga.  
 (c) A loss of ₹450.  
 (d) Losing by a margin of 1500 votes.

3. Three jumps  
 4. 20 points  
 5. (a) -324 (b) -3034  
 6.  $21 - 9 + (-13) = 21 - 22 = -1$   
 Dakshita incorrectly put a + sign with the sum while she was adding two negative integers.  
 7. 9 floors  
 8. 25 ice-creams  
 9. Team C  
 10. -1, 0, 1, 2, 3 (Answer may vary)  
 11. (a) A : +8 km, B: -12 km, C: + 11 km, D: -9 km (b) Point C  
 (c) 23 km (d) 17 km below sea level.

**Challenge Question (Page 278)**

Nidhi, 45

**Model Test Paper - 2**

- A. 1. (d) 2. (c) 3. (c) 4. (c) 5. (d)  
 6. (c) 7. (b) 8. (d) 9. (b) 10. (a)  
 B. 1. sides and angles 2. 36 cm 3. 1 4. diagonal  
 5. twin  
 C. 1. F 2. T 3. F 4. T 5. T  
 D. 1. (a) -99, Additive inverse = 99 (b) -113, Additive inverse = 113  
 2. (a) AD, BC (b) MN, AB (c) AC, BD (Answers may vary)  
 3. 96 4. 412 sq. cm 5. H and S  
 6. Total distance covered =  $3\frac{47}{60}$  km; No  
 8. (a)  $\frac{15}{155}$  (b) yes (c)  $\frac{9}{31}, \frac{19}{31}, \frac{3}{31}$