

Perimeter, Area and Data Handling

Mathematics · Class 7 · Topic-wise Practice Worksheet

TIME 45 minutes	QUESTIONS 18	TOTAL MARKS 24	MAX. SCORE ___ / 24
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Name: _____ Class/Sec: _____ Date: _____

INSTRUCTIONS

- There are **18 questions** in this worksheet. All questions are compulsory.
- Each question has four options (A), (B), (C) and (D). Exactly **one** option is correct.
- Questions 1–15 carry **1 mark** each. Questions 16–18 (Achievers Section) carry **3 marks** each.
- There is no negative marking. Take $\pi = \frac{22}{7}$ unless stated otherwise.
- Read every graph carefully. Figures are not drawn to scale.

Section A — Mathematical Reasoning

Q1–Q8 · 1 mark each

- The area of a triangle with base 14 cm and height 9 cm is _____.
 (A) 63 cm^2 (B) 126 cm^2
 (C) 23 cm^2 (D) 252 cm^2
- The circumference of a circle of radius 7 cm is _____.
 (A) 22 cm (B) 49 cm
 (C) 154 cm (D) 44 cm
- The area of a circle of radius 7 cm is _____.
 (A) 154 cm^2 (B) 49 cm^2
 (C) 44 cm^2 (D) 308 cm^2
- The area of a parallelogram with base 12 cm and height 8 cm is _____.
 (A) 20 cm^2 (B) 48 cm^2
 (C) 40 cm^2 (D) 96 cm^2
- The mode of the data 5, 7, 3, 7, 9, 7, 5 is _____.
 (A) 3 (B) 5
 (C) 7 (D) 9
- The median of the data 12, 7, 15, 9, 20 is _____.
 (A) 9 (B) 12
 (C) 15 (D) 63
- The probability of getting an odd number when a fair die is rolled once is _____.
 (A) $\frac{1}{2}$ (B) $\frac{1}{3}$
 (C) $\frac{1}{6}$ (D) $\frac{2}{3}$

8. 1 hectare is equal to _____ square metres.

(A) 100

(B) 1,000

(C) 10,000

(D) 1,00,000

Section B — Everyday Mathematics and Reasoning

Q9–Q15 · 1 mark each

9. The bar graph shows the marks scored by five students. What is the **mean** mark?

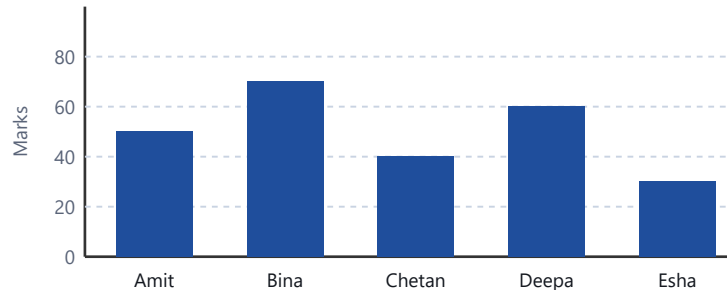


Fig. 9.1 — Marks scored by five students

(A) 48

(B) 50

(C) 52

(D) 55

10. Using the same bar graph, what is the **range** of the marks?

(A) 30

(B) 40

(C) 50

(D) 70

11. The circumference of a circular park is 88 m. What is its radius?

(A) 7 m

(B) 28 m

(C) 21 m

(D) 14 m

12. A rectangular field 60 m by 40 m has a path 2 m wide running all around it on the **outside**. What is the area of the path?

(A) 416 m²

(B) 432 m²

(C) 448 m²

(D) 480 m²

13. A bag holds 4 red, 6 blue and 5 green marbles. One marble is drawn at random. What is the probability that it is **not** blue?

(A) $\frac{6}{15}$

(B) $\frac{4}{15}$

(C) $\frac{9}{15}$

(D) $\frac{5}{15}$

14. The area of a triangle is 84 cm² and its base is 14 cm. What is its height?

(A) 6 cm

(B) 24 cm

(C) 14 cm

(D) 12 cm

15. The mean of five numbers is 32. If one number is removed, the mean of the remaining four becomes 30. What was the number removed?

(A) 36

(B) 38

(C) 40

(D) 42

16. Consider the following statements.

- (i) Doubling the radius of a circle doubles its area.
- (ii) The probability of an event always lies between 0 and 1.
- (iii) The mode of a set of data may not be unique.

Which of the statements is/are correct?

- | | |
|------------------------|-------------------------|
| (A) (i) and (ii) only | (B) (ii) and (iii) only |
| (C) (i) and (iii) only | (D) All three |

17. A wire is bent into a circle of radius 14 cm. The same wire is then straightened and bent into a square. What is the side of the square?

- | | |
|-----------|-----------|
| (A) 22 cm | (B) 11 cm |
| (C) 44 cm | (D) 88 cm |

18. The mean of 10 numbers is 45. It is later found that one number was read as 25 instead of 52. What is the correct mean?

- | | |
|----------|----------|
| (A) 45.7 | (B) 47.7 |
| (C) 46.5 | (D) 48.2 |

Answer Key

1	A	2	D	3	A	4	D	5	C
6	B	7	A	8	C	9	B	10	B
11	D	12	A	13	C	14	D	15	C
16	B	17	A	18	B				

Solutions

1. Answer: (A) 63 cm^2

$$\begin{aligned}\text{Area of a triangle} &= \frac{1}{2} \times \text{base} \times \text{height} \\ &= \frac{1}{2} \times 14 \times 9 = \mathbf{63 \text{ cm}^2}.\end{aligned}$$

2. Answer: (D) 44 cm

$$\text{Circumference} = 2\pi r = 2 \times \frac{22}{7} \times 7 = \mathbf{44 \text{ cm}}.$$

3. Answer: (A) 154 cm^2

$$\text{Area} = \pi r^2 = \frac{22}{7} \times 7 \times 7 = 22 \times 7 = \mathbf{154 \text{ cm}^2}.$$

4. Answer: (D) 96 cm^2

Area of a parallelogram = base $\times$ height = $12 \times 8 = \mathbf{96 \text{ cm}^2}$. Note that the height is the perpendicular distance, not the slanting side.

5. Answer: (C) 7

The mode is the value that occurs most often. Here 7 appears three times, 5 twice, and 3 and 9 once each, so the mode is **7**.

6. Answer: (B) 12

Arrange in order: 7, 9, 12, 15, 20.

There are 5 values, so the median is the 3rd one, which is **12**.

7. Answer: (A) $\frac{1}{2}$

The odd numbers on a die are 1, 3 and 5 — that is 3 favourable outcomes out of 6.

$$P(\text{odd}) = \frac{3}{6} = \frac{1}{2}.$$

8. Answer: (C) 10,000

1 hectare is the area of a square of side 100 m, so it is $100 \times 100 = \mathbf{10,000 \text{ m}^2}$.

9. Answer: (B) 50

Reading the bars against the scale: Amit 50, Bina 70, Chetan 40, Deepa 60 and Esha 30.

$$\text{Total} = 50 + 70 + 40 + 60 + 30 = 250.$$

$$\text{Mean} = 250 \div 5 = \mathbf{50 \text{ marks}}.$$

10. Answer: (B) 40

$$\text{Range} = \text{highest} - \text{lowest} = 70 - 30 = \mathbf{40 \text{ marks}}.$$

11. Answer: (D) 14 m

$$\text{Circumference} = 2\pi r, \text{ so } 2 \times \frac{22}{7} \times r = 88.$$

$$\frac{44}{7} \times r = 88$$

$$r = 88 \times \frac{7}{44} = \mathbf{14 \text{ m}}.$$

12. Answer: (A) 416 m^2

Outer rectangle = $(60 + 4)$ by $(40 + 4) = 64 \text{ m}$ by 44 m , since the path adds 2 m on each side.

$$\text{Outer area} = 64 \times 44 = 2,816 \text{ m}^2.$$

$$\text{Inner area} = 60 \times 40 = 2,400 \text{ m}^2.$$

$$\text{Area of path} = 2,816 - 2,400 = \mathbf{416 \text{ m}^2}.$$

13. Answer: (C) $\frac{9}{15}$

Total marbles = $4 + 6 + 5 = 15$.

Marbles that are not blue = $4 + 5 = 9$.

P(not blue) = $\frac{9}{15}$, which is $\frac{3}{5}$.

14. Answer: (D) 12 cm

Area = $\frac{1}{2} \times \text{base} \times \text{height}$, so $84 = \frac{1}{2} \times 14 \times h$.

$84 = 7h$, giving $h = \mathbf{12 \text{ cm}}$.

15. Answer: (C) 40

Total of all five = $32 \times 5 = 160$.

Total of the remaining four = $30 \times 4 = 120$.

Number removed = $160 - 120 = \mathbf{40}$.

16. Answer: (B) (ii) and (iii) only

Statement (i) is false — area = πr^2 , so doubling the radius makes the area **four** times as large. Statement (ii) is true.

Statement (iii) is true; a set such as 2, 2, 5, 5, 7 has two modes. Hence **(ii) and (iii)**.

17. Answer: (A) 22 cm

The length of wire equals the circumference of the circle.

Circumference = $2 \times \frac{22}{7} \times 14 = 88 \text{ cm}$.

That becomes the perimeter of the square, so each side = $88 \div 4 = \mathbf{22 \text{ cm}}$.

18. Answer: (B) 47.7

Wrong total = $45 \times 10 = 450$.

The reading was 27 too small ($52 - 25 = 27$), so the correct total = $450 + 27 = 477$.

Correct mean = $477 \div 10 = \mathbf{47.7}$.