Area

Standard difficulty · 20 questions · 40 marks · Time: 28 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. A triangle has base 11 cm and height 13 cm. Its area is:
(a) 24 cm^2 **(b)** 143 cm^2 **(c)** 77 cm^2 **(d)** 71.5 cm^2

2. A parallelogram has base 40 m and height 20 m. Its area is:
(a) 800 m^2 **(b)** 400 m^2 **(c)** 120 m^2 **(d)** 820 m^2

3. The area of a triangle is:
(a) 2 × base × height **(b)** base + height
(c) ½ × base × height **(d)** base × height

4. A rhombus has diagonals 7 cm and 13 cm. Its area is:
(a) 20 cm^2 **(b)** 40 cm^2 **(c)** 91 cm^2 **(d)** 45.5 cm^2

5. A trapezium has parallel sides 30 m and 52 m, 18 m apart. Its area is:
(a) 100 m^2 **(b)** 1476 m^2 **(c)** 738 m^2 **(d)** 14040 m^2

6. A triangle has area 84 cm^2 and base 12 cm. Its height is:
(a) 26 cm **(b)** 14 cm **(c)** 7 cm **(d)** 28 cm

7. A triangle with base 10 cm and height 6 cm has area:
(a) 15 cm^2 **(b)** 60 cm^2 **(c)** 30 cm^2 **(d)** 16 cm^2

8. A right-angled triangle has legs 18 cm and 24 cm. Its area is:
(a) 216 cm^2 **(b)** 219 cm^2 **(c)** 42 cm^2 **(d)** 432 cm^2

Section B — Short answer — 8 × 2 = 16 marks

9. Find the area of a trapezium with parallel sides 6 cm and 31 cm and height 15 cm.

10. A rhombus has area 289 cm^2 and one diagonal 34 cm. Find the other diagonal.

11. A parallelogram has sides 8 cm and 20 cm. The height on the 8 cm side is 15 cm. Find the area and the height on the 20 cm side.

12. A house-shaped figure is a rectangle 19 m wide and 4 m tall with a triangle of height 8 m on top. Find its area.

13. A field ABCD has diagonal AC = 42 m. The perpendiculars from B and D to AC are 18 m and 15 m. Find the area of the field.

14. A triangle has area 114 m^2 and height 19 m. Find its base.

15. A trapezium has area 561 cm^2, height 22 cm and one parallel side 17 cm. Find the other parallel side.

16. A triangle of base 14 cm and height 2 cm is cut out of a rectangle 24 cm by 14 cm. What area is left?

Section C — Word problems — 4 × 4 = 16 marks

17. A field is a trapezium with parallel sides 56 m and 75 m, 58 m apart. Ploughing costs Rs 4 per m^2. Find the area and the cost.

18. Isha makes a kite in the shape of a rhombus with diagonals 22 cm and 48 cm. How much paper does it use? How much for 5 such kites?

19. A floor plan is L-shaped: a 9 m by 15 m room joined to a 6 m by 10 m room. Find the total floor area and the cost of tiling at Rs 800 per m^2.

20. A garden is a parallelogram with base 14 m and height 21 m. A path 1 m wide runs across it, parallel to the base, all the way along. What area of garden is left for plants?

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Answer key

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Q	Answer	Working
1	**(d) 71.5 cm²**	½ × 11 × 13
2	**(a) 800 m²**	40 × 20
3	**(c) ½ × base × height**	—
4	**(d) 45.5 cm²**	½ × 7 × 13
5	**(c) 738 m²**	½ × (30 + 52) × 18
6	**(b) 14 cm**	2 × 84 ÷ 12
7	**(c) 30 cm²**	—
8	**(a) 216 cm²**	the legs are the base and height: ½ × 18 × 24
9	**277.5 cm²**	½ × 37 × 15
10	**17 cm**	2 × 289 ÷ 34
11	**120 cm²; 6 cm**	8 × 15 = 120; 120 ÷ 20
12	**152 m²**	19 × 4 + ½ × 19 × 8 = 76 + 76
13	**693 m²**	½ × 42 × (18 + 15)
14	**12 m**	2 × 114 ÷ 19
15	**34 cm**	2 × 561 ÷ 22 = 51; 51 − 17
16	**322 cm²**	336 − 14
17	**3799 m²; Rs 15,196**	½ × 131 × 58 = 3799; × 4
18	**528 cm²; 2640 cm²**	½ × 22 × 48
19	**195 m²; Rs 156,000**	135 + 60
20	**280 m²**	14 × 21 − 14 × 1

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