CLASS VIII – MATHEMATICS

Chapter Test: Area

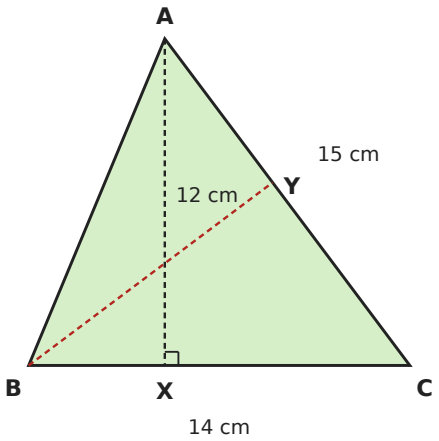
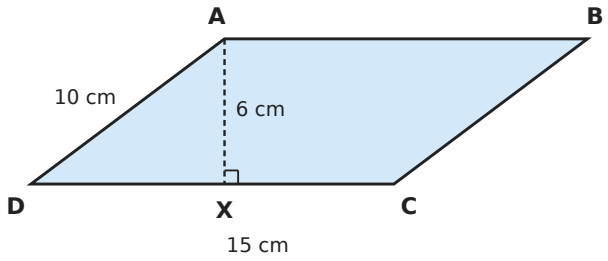
(Ganita Prakash, Grade 8, Part II – Chapter 7)

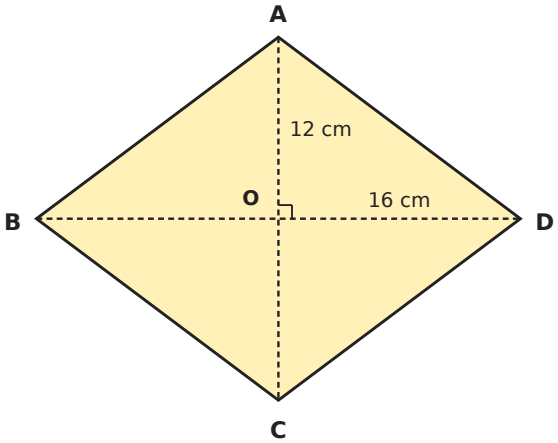
Time: 1½ Hours **M. M.: 40**

General Instructions:

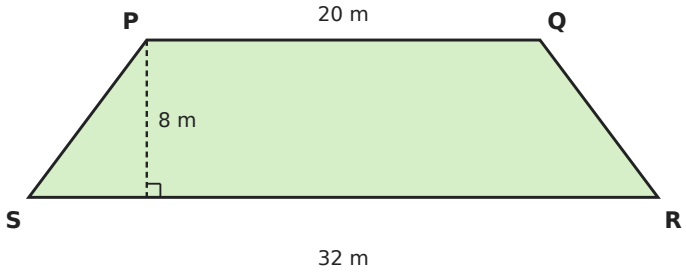
1. This paper contains 20 questions. All questions are compulsory.
2. This paper is divided into 4 sections: **A, B, C** and **D**.
3. In **Section A**, Questions no. 1 to 10 are Multiple Choice Questions carrying 1 mark each.
4. In **Section B**, Questions no. 11 to 13 are Very Short Answer type questions carrying 2 marks each.
5. In **Section C**, Questions no. 14 to 17 are Short Answer type questions carrying 3 marks each.
6. In **Section D**, Questions no. 18 to 20 are Long Answer / Case-based questions carrying 4 marks each.
7. There is no overall choice. However, an internal choice has been provided in 1 question of Section B, 3 questions of Section C and 2 questions of Section D.
8. Figures are only for reference and are not drawn to scale. Questions 9, 10, 11, 14 and 18 are figure-based.
9. Show all the steps of your working.
10. Use of calculator is **not** allowed.

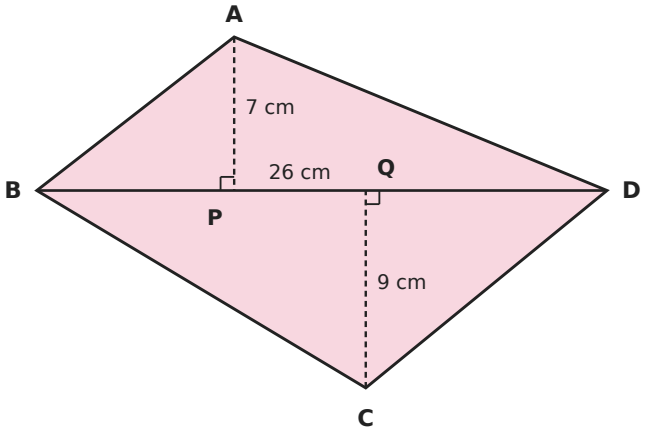
Q. No.	Section – A	Marks
1	A diagonal divides a rectangle of sides 15 cm and 8 cm into two triangles. The area of each triangle is (A) 120 cm^2 (B) 60 cm^2 (C) 23 cm^2 (D) 30 cm^2	**[1]**
2	The area of a triangle with base 14 cm and height 9 cm is (A) 126 cm^2 (B) 23 cm^2 (C) 31.5 cm^2 (D) 63 cm^2	**[1]**
3	In ΔPQR, M is the midpoint of QR. If the area of ΔPQR is 48 cm^2, the area of ΔPQM is (A) 24 cm^2 (B) 12 cm^2 (C) 48 cm^2 (D) 96 cm^2	**[1]**
4	Triangles having the same base BC and their third vertex anywhere on a line parallel to BC have (A) equal perimeters (B) equal angles (C) equal areas (D) equal sides	**[1]**
5	The area of a parallelogram with base 12 cm and height 7.5 cm is (A) 90 cm^2 (B) 45 cm^2 (C) 19.5 cm^2 (D) 180 cm^2	**[1]**
6	The diagonals of a rhombus are 18 cm and 24 cm. Its area is (A) 432 cm^2 (B) 108 cm^2 (C) 216 cm^2 (D) 42 cm^2	**[1]**
7	A trapezium has parallel sides 9 cm and 15 cm, and the distance between them is 6 cm. Its area is (A) 144 cm^2 (B) 72 cm^2 (C) 90 cm^2 (D) 36 cm^2	**[1]**
8	Given 1 in^2 = 6.4516 cm^2, a sheet of area 10 in^2 has area (in cm^2) (A) 25.4 (B) 254 (C) 645.16 (D) 64.516	**[1]**

Q. No.	Section – A	Marks
9	In Fig. 1, AX ⊥ BC, BY ⊥ AC, AX = 12 cm, BC = 14 cm and AC = 15 cm. The length of BY is  Fig. 1: Triangle ABC with altitudes AX and BY (A) 9.6 cm (B) 12.8 cm (C) 11.2 cm (D) 13 cm	**[1]**
10	In the parallelogram ABCD of Fig. 2, DC = 15 cm, AD = 10 cm and the height AX = 6 cm. The distance between the sides AD and BC is  Fig. 2: Parallelogram ABCD (A) 4 cm (B) 9 cm (C) 12 cm (D) 7.5 cm	**[1]**

Q. No.	Section – B	Marks
11	Fig. 3 shows a rhombus ABCD whose diagonals AC and BD are 12 cm and 16 cm.  Fig. 3: Rhombus ABCD with its diagonals (i) Find the area of the rhombus. [1] (ii) Find the length of a side of the rhombus. [1]	**[2]**

Q. No.	Section – B	Marks
12	(A) The area of a triangle is 108 cm^2 and its base is 18 cm. Find its height. **OR** (B) The area of a trapezium is 90 cm^2 and its parallel sides are 8 cm and 12 cm. Find the distance between the parallel sides.	**[2]**
13	(i) Express 7.62 cm in inches. [1] (ii) Express 129.032 cm^2 in in^2. (1 in = 2.54 cm and 1 in^2 = 6.4516 cm^2.) [1]	**[2]**

Q. No.	Section – C	Marks
14	A garden is in the shape of the trapezium PQRS in Fig. 4, with PQ ∥ SR, PQ = 20 m and SR = 32 m. The distance between PQ and SR is 8 m.  Fig. 4: A garden in the shape of trapezium PQRS (PQ ∥ SR) (i) Find the area of the garden. [1] (ii) Find the cost of laying grass on the garden at ₹45 per m^2. [1] (iii) If the non-parallel sides PS and QR are equal, find the length of each. [1]	**[3]**
15	(A) In ΔABC, D is the midpoint of BC and E is the midpoint of AD. The area of ΔABC is 64 cm^2. Find the area of ΔABE, giving reasons. **OR** (B) ΔPBC and ΔQBC have the same base BC = 12 cm, and the vertices P and Q lie on a line parallel to BC at a distance of 7 cm from it. Find the area of each triangle. What is the area of ΔRBC for any other point R on the same line?	**[3]**
16	(A) A rectangle measures 20 cm × 12 cm. Its diagonals meet at O and divide it into four triangles. Find the area of the rectangle and the area of each of the four triangles. **OR** (B) A parallelogram has base 16 cm and height 9 cm. Find its area. If another side of the parallelogram is 12 cm, find the height corresponding to that side.	**[3]**
17	(A) An L-shaped hall is made by removing a rectangular corner of 6 m × 4 m from a rectangle of 14 m × 10 m. Find its area and the cost of tiling it at ₹80 per m^2. **OR** (B) A trapezium has parallel sides 10 cm and 22 cm, and the distance between them is 8 cm. Find its area. A rectangle of the same area has one side 16 cm. Find its other side and its perimeter.	**[3]**

Q. No.	Section – D	Marks
18	(A) In the quadrilateral ABCD of Fig. 5, the diagonal BD = 26 cm, AP ⊥ BD with AP = 7 cm and CQ ⊥ BD with CQ = 9 cm.  Fig. 5: Quadrilateral ABCD with diagonal BD (i) Find the area of ΔABD. [1] (ii) Find the area of ΔBCD. [1] (iii) Find the area of the quadrilateral ABCD. [1] (iv) A rectangle has the same area as ABCD and one side 26 cm. Find its other side. [1] **OR** (B) A rectangular park measures 28 m × 20 m. A path 2 m wide runs all around outside the park. (i) Find the area of the path. [2] (ii) Find the cost of paving the path at ₹150 per m^2. [1] (iii) Find the length of the fence along the outer boundary of the path. [1]	**[4]**
19	(A) A rectangular sheet measures 20 in × 15 in. (1 in = 2.54 cm; 1 in^2 = 6.4516 cm^2.) (i) Find its area in in^2. [1] (ii) Find its area in cm^2. [2] (iii) Find its length and width in centimetres. [1] **OR** (B) A rhombus-shaped signboard has diagonals 60 cm and 80 cm. (i) Find its area. [1] (ii) Find the length of its side. [1] (iii) Find the distance between two opposite sides. [2]	**[4]**
20	**Case Study:** A rectangular lawn measures 24 m × 18 m. A gardener joins the midpoints of the four sides to make a rhombus-shaped flower bed inside the lawn. The rest of the lawn is covered with grass. (i) Find the area of the lawn. [1] (ii) Write the lengths of the diagonals of the flower bed and find its area. [1] (iii) Find the area covered with grass. [1] (iv) Find the cost of the grass at ₹35 per m^2. [1]	**[4]**

— End of Question Paper —