# DEVESH TEDIA CLASSES

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D.T.CLASSES
Class 09 - Mathematics

Section A

1. Each side of an equilateral triangle measures 8 cm. The area of the triangle is **[1]**

   a) $32\sqrt{3}\,\text{cm}^2$

   b) $8\sqrt{3}\,\text{cm}^2$

   c) $16\sqrt{3}\,\text{cm}^2$

   d) 48 cm^2

2. In the given figure, the area of the $\triangle$ABC is **[1]**
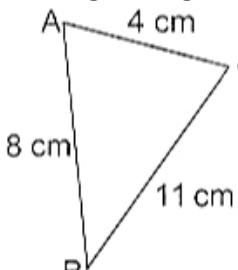
   a) 12.29 cm^2

   b) 13.24 cm^2

   c) 11.32 cm^2

   d) 15.37 cm^2

3. The sides of a triangle are in the ratio 5 : 12 : 13 and its perimeter is 150 cm. The area of the triangle is **[1]**

   a) 375 cm^2

   b) 500 cm^2

   c) 250 cm^2

   d) 750 cm^2

4. The base of an isosceles triangle is 16 cm and its area is 48 cm^2. The perimeter of the triangle is **[1]**

   a) 36 cm

   b) 324 cm

   c) 48 cm

   d) 41 cm

5. The sides of a triangular flower bed are 5 m, 8 m and 11 m. the area of the flower bed is **[1]**

   a) $\sqrt{330}$ m^2

   b) $\sqrt{300}$ m^2

   c) $21\sqrt{4}$ m^2

   d) $4\sqrt{21}$ m^2

6. If each side of a $\triangle$ is halved then its perimeter will be decreased by **[1]**

   a) 200%

   b) 25 %

   c) 70 %

   d) 50%

7. The length of the sides of a triangle are 5 cm, 7 cm and 8 cm. Area of the triangle is : **[1]**

   a) $10\sqrt{3}$ cm^2

   b) $50\sqrt{3}$ cm^2

   c) 300 cm^2

   d) $100\sqrt{3}$ cm^2

8. The perimeter of an equilateral triangle is 60 m. The area is **[1]**

a) $15\sqrt{3}\ m^2$
b) $10\sqrt{3}\ m^2$

c) $20\sqrt{3}\ m^2$
d) $100\ \sqrt{3}\ m^2$

9. The sides of a triangle are 35 cm, 54 cm and 61 cm, respectively. The length of its longest altitude **[1]**

   a) $24\sqrt{5}$cm
                                                     b) 28 cm

   c) $16\sqrt{5}$cm
                                                     d) $10\sqrt{5}$cm

10. Area of an equilateral triangle of side 2 cm is : **[1]**

   a) 1 cm^2
                                                     b) $\sqrt{5}$ cm^2

   c) $\sqrt{2}$ cm^2
                                                   d) $\sqrt{3}$ cm^2

11. Find the area of quadrilateral ABCD in which AB = 9 cm, BC = 40 cm, CD = 28 cm, DA = 15 cm and **[1]** $\angle$ABC = 90°.

   a) 180 cm^2
                                                   b) 300 cm^2

   c) 306 cm^2
                                                   d) 126 cm^2

12. Each equal side of an isosceles triangle is 13 cm and its base is 24 cm Area of the triangle is : **[1]**

   a) $60\ cm^2$
                                                   b) $50\sqrt{3}\ cm^2$

   c) $25\sqrt{3}\ cm^2$
                                                   d) $40\sqrt{3}\ cm^2$

13. The area of a triangle, two sides of which are 8 cm and 11 cm and the perimeter is 32 cm is **[1]** $k\sqrt{30}\ \text{cm}^2$. Find the value of k.

   a) 7
                                                   b) 6

   c) 9
                                                     d) 8

14. The difference between the semi-perimeter and the sides of $\triangle$ABC are 7 cm, 5 cm and 3 cm **[1]** respectively. The perimeter of the triangle is _____.

   a) 10 cm
                                                   b) 15 cm

   c) 25 cm
                                                 d) 30 cm

15. The base of an isosceles triangle is 6 cm and each of its equal sides is 5 cm. The height of the **[1]** triangle is

   a) 4 cm
                                                   b) $\sqrt{30}$cm

   c) $\sqrt{11}$cm
                                                   d) 8 cm

16. A conical tent is made by stitching 12 triangular pieces of cloth of two different colours as shown **[1]** in the given figure. Each piece measuring 11 m, 11 m and 6 m. How much cloth of each colour is required for the conical tent?
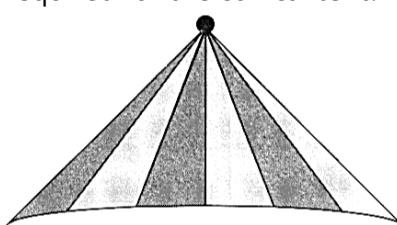
   a) 198 m^2, 198 m^2
                                                   b) 190.5 m^2, 180 m^2

   c) 200 m^2, 196 m^2
                                                 d) 190.5 m^2, 190.5 m^2

17. The base of a right triangle is 8 cm and hypotenuse is 10 cm. Its area will be **[1]**

    a) 48 cm^2 b) 80 cm^2

    c) 40 cm^2 d) 24 cm^2

18. A field is in the shape of a trapezium whose parallel sides are 77 cm and 60 cm. The non-parallel sides are 25 cm and 26 cm. Find the area of the field. **[1]**

    a) 1596 cm^2 b) 1296 cm^2

    c) 1804 cm^2 d) 1644 cm^2

19. The base of an isosceles right triangle is 30 cm. Its area is **[1]**

    a) $225\sqrt{3}$ cm^2 b) 450 cm^2

    c) 225 cm^2 d) $225\sqrt{2}$ cm^2

20. The sides of a triangle are x, y and z. If x + y = 7 m, y + z = 9 m, and z + x = 8 m, then area of the triangle is : **[1]**

    a) 6 m^2 b) 4 m^2

    c) 5 m^2 d) 7 m^2

21. The sides of a triangle are 325 m, 300 m and 125 m. Its area is **[1]**

    a) 48750 m^2 b) 97500 m^2

    c) 18750 m^2 d) 37500 m^2

22. The perimeter of a field in the form of an equilateral triangle is 36 cm, then its area is given by **[1]**

    a) $36\sqrt{3}$ cm^2 b) $8\sqrt{3}$ cm^2

    c) $98\sqrt{3}$ cm^2 d) $42\sqrt{3}$ cm^2

23. Area of an isosceles triangle ABC with AB = a = AC and BC = b is **[1]**

    a) $\frac{1}{4}b\sqrt{a^2 - b^2}$ b) $\frac{1}{2}b\sqrt{4a^2 - b^2}$

    c) $\frac{1}{2}b\sqrt{a^2 - b^2}$ d) $\frac{1}{4}b\sqrt{4a^2 - b^2}$

24. The length of each side of an equilateral triangle having an area of $9\sqrt{3}\ cm^2$ is **[1]**

    a) 4 cm   b) 36 cm

    c) 6 cm   d) 8 cm

25. If the area of an equilateral triangle is $16\sqrt{3}$ cm^2 then the perimeter of the triangle is : **[1]**

    a) 48 cm   b) 24 cm

    c) 12 cm   d) 306 cm

26. The lengths of the three sides of a triangular field are 40 m, 24 m and 32 m respectively. The area of the triangle is **[1]**

    a) 384 m^2 b) 480 m^2

    c) 360 m^2 d) 320 m^2

27. The base of an isosceles triangle is 8 cm long and each of its equal sides measures 6 cm. The area of the triangle is **[1]**

a) $16\sqrt{5}$cm^2 b) $16\sqrt{3}$cm^2

c) $8\sqrt{5}$cm^2 d) $8\sqrt{3}$cm^2

28. A square and an equilateral triangle have equal perimeters. If the diagonal of the square is $12\sqrt{2}$ **[1]** cm, then area of the triangle is

a) $24\sqrt{2}$ cm^2 b) $64\sqrt{3}$ cm^2

c) $24\sqrt{3}$ cm^2 d) $48\sqrt{3}$ cm^2

29. The lengths of the sides of ΔABCare consecutive integers. It ΔABC has perimeter as an **[1]** equilateral triangle triangle with a side of length 9 cm, what is the length of the shortest side of ΔABC?

a) 10   b) 6

c) 8   d) 4

30. The sides of a triangle are 5 cm, 12 cm and 13 cm. then its area is **[1]**

a) 0.0015 m^2 b) 0.0026 m^2

c) 0.003 m^2 d) 0.0024 m^2

31. The base of a right triangle is 8 cm and hypotenuse is 10 cm. Its area will be : **[1]**

a) 40 cm^2 b) 24 cm^2

c) 80 cm^2 d) 48 cm^2

32. The sides of a triangle are 56 cm, 60 cm and 52 cm long. Then the area of the triangle is **[1]**

a) 1344 cm^2 b) 1392 cm^2

c) 1322 cm^2 d) 1311 cm^2

33. The area of one triangular part of a rhombus ABCD is given as 125 cm^2. The area of rhombus **[1]** ABCD is

a) 1250 cm^2 b) 2500 cm^2

c) 625 cm^2 d) 500 cm^2

34. An isosceles right triangle has area $8cm^2$. The length of its hypotenuse is : **[1]**

a) $\sqrt{32}$ cm b) $\sqrt{48}$ cm

c) $\sqrt{16}$ cm d) $\sqrt{24}$ cm

35. The sides of a triangle are 35 cm, 54 cm and 61 cm respectively, and its area is $420\sqrt{5}$ cm^2. The **[1]** length of its longest altitude is

a) $10\sqrt{5}$ cm   b) $21\sqrt{5}$ cm

c) 28 cm   d) $24\sqrt{5}$ cm

36. The area of an isosceles triangle having base 2 cm and the length of one of the equal sides 4 cm, **[1]** is

a) $\sqrt{\frac{15}{2}}$ cm^2 b) $4\sqrt{15}$ cm^2

c) $\sqrt{15}$ cm^2 d) $2\sqrt{15}$ cm^2

37. The area of an equilateral triangle is $81\sqrt{3}\text{cm}^2$. Its height is **[1]**

   a) 9 cm

   b) $6\sqrt{3}\text{cm}$

   c) $9\sqrt{3}\text{cm}$

   d) $18\sqrt{3}\text{cm}$

38. Suman made a picture with some white paper and a single coloured paper as shown in figure. **[1]** White paper is available at her home and free of cost. The cost of coloured paper used is at the rate of 10p per cm^2. Find the total cost of the coloured paper used. (Take $\sqrt{3}$ = 1.732 and $\sqrt{11}$ = 3.32)
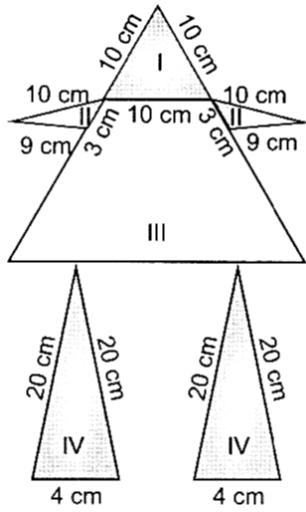
   a) ₹ 14

   b) ₹ 14.95

   c) ₹ 16

   d) ₹ 13

39. If side of a scalene $\triangle$ is doubled then area would be increased by **[1]**

   a) 200%

   b) 300 %

   c) 25 %

   d) 50 %

40. The sides of a triangle are 7 cm, 9 cm and 14 cm. Its area is **[1]**

   a) 63 cm^2

   b) $24\sqrt{5}\text{cm}^2$

   c) $12\sqrt{3}\text{cm}^2$

   d) $12\sqrt{5}\text{cm}^2$

Section B

41. A triangle and a parallelogram have the same base and the same area. If the sides of the triangle **[2]** are 26 cm, 28 cm and 30 cm and the parallelogram stands on the base 28 cm, find the height of the parallelogram.

42. The base of a right-angled triangle measures 48 cm and its hypotenuse measures 50 cm. Find the **[2]** area of the triangle.

43. An isosceles triangle has perimeter 30 cm and each of the equal sides is 12 cm. Find the area of **[2]** the triangle.

44. The sides of a triangle are 8 cm, 15 cm, and 17 cm. Find its area. **[2]**

45. If the area of an equilateral triangle is $36\sqrt{3}$ cm^2, find its perimeter. **[2]**

46. Find the area of an equilateral triangle having altitude h cm. **[2]**

47. Find area of triangle with two sides as 18 cm & 10 cm and the perimeter is 42 cm. **[2]**

48. If the area of an equilateral triangle is $36\sqrt{3}\text{cm}^2$, find its perimeter. **[2]**

49. Find the area of a quadrilateral when one of the diagonals measures 50 cm and the lengths of **[2]**

perpendiculars from the opposite vertices of quadrilateral on the given diagonal are 10 cm and 20 cm.

50. Find the area of an isosceles triangle each of whose equal sides measures 13 cm and whose base **[2]** measures 20 cm.

Section C

51. A traffic signal board, indicating 'SCHOOLAHEAD', is an equilateral triangle with side 'a'. Find the **[3]** area of the signal board, using Heron's Formula. If its perimeter is 180 cm,

52. Find the cost of leveling the ground in the form of equilateral triangle whose side is 12 m at Find **[3]** the cost of leveling the ground at the rate of Rs 5 per square meter.

53. Find the area of a quadrilateral ABCD whose sides are 9 m, 40 m, 28 m and 15 m respectively and **[3]** the angle between the first two sides is a right angle.

54. A traffic signal board, indicating SCHOOLAHEAD is an equilateral triangle with side a Find the **[3]** area of the signal board, using Heron's formula. If its perimeter is 180 cm, what will be the area of the signal board?
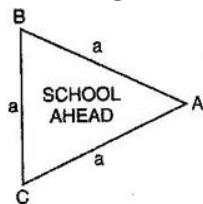
55. If the side of a rhombus is 10 cm and one diagonal is 16 cm, then the area of the rhombus is 96 **[3]** cm^2. State whether the statement is True or False and justify your answer.

56. Find the area of a quadrilateral ABCD in which AB = 3 cm, BC = 4 cm, CD = 6 cm, DA = 5 cm and **[3]** diagonal AC = 5 cm.

57. Find the area of a quadrilateral ABCD in which AB = 3 cm, BC = 4 cm, CD = 4 cm, DA = 5cm and AC **[3]** = 5 cm.
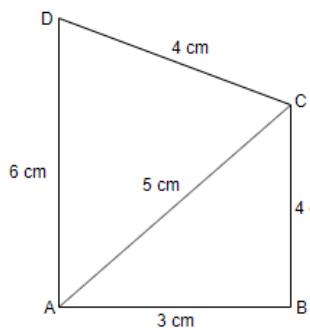
58. A rhombus sheet, whose perimeter is 32 m and whose one diagonal is 10 m long, is painted on **[3]** both sides at the rate of ₹ 5 per m^2. Find the cost of painting.

59. In a rectangular field of dimensions 60 m × 50 m, a triangular park is constructed. If the **[3]** dimensions of the park are 50 m, 45 m, and 35 m, find the area of the remaining field.

60. Radha made a picture of an aeroplane with coloured paper as shown in figure. Find the total area **[3]** of the paper used.
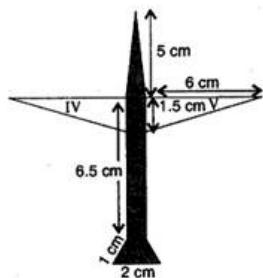
Section D

61. **Read the following text carefully and answer the questions that follow:** **[4]**

Renu made a picture of an aeroplane with coloured paper as shown in the figure.
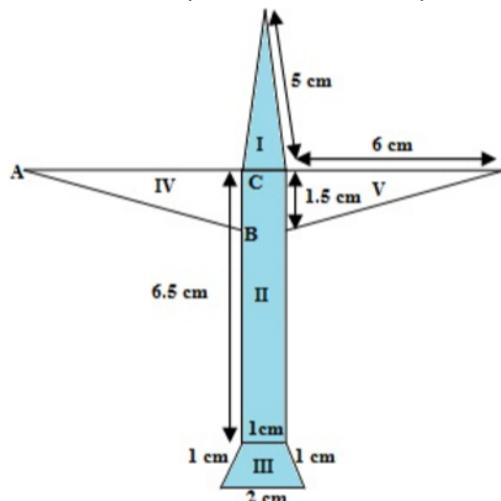
i. What is the area of portion I? (1)

ii. What is the area of portion II? (1)

iii. What is the area of portion III? (2)

OR

What is the area of portion IV? (2)

62. **Read the following text carefully and answer the questions that follow:** **[4]**

Isosceles triangles were used to construct a bridge in which the base (unequal side) of an isosceles triangle is 4 cm and its perimeter is 20 cm.

i. What is the length of equal sides? (1)

ii. What is the Heron's formula for the area of triangle? (1)

iii. What is the area of the highlighted triangle? (2)

OR

What is the area of a triangle if its sides are in the ratio 3:5:7 and its perimeter is 300 m? (2)

63. **Read the following text carefully and answer the questions that follow:** **[4]**

Rajeev made an arrangement with red and grey coloured paper sheets as shown in the figure.

Dimensions of the four parts of the paper are as shown in the figure.
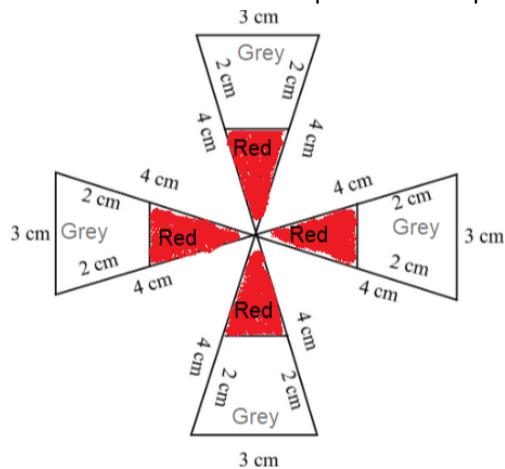
i. What is the area of a triangle that is shaded in grey and red? (1)

ii. What is the area of a single red triangle? (1)

iii. What is the area of the shaded grey portion? (2)

OR

What is the ratio of the area of the red portion to the area of the grey portion? (2)

64. **Read the following text carefully and answer the questions that follow:** **[4]**

Shakshi prepared a Rangoli in a triangular shape on Diwali. She makes a small triangle under a big triangle as shown in figure.
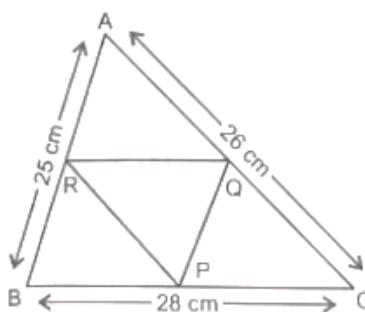
Sides of big triangle are 25 cm, 26 cm and 28 cm. Also, $\triangle$PQR is formed by joining mid points of sides of $\triangle$ABC.

i. What is the semi-perimeter of $\triangle$ABC? (1)

ii. What is the length of RQ? (1)

iii. If colourful rope is to be placed along the sides of small $\triangle$PQR. What is the length of the rope? (2)

OR

What is the area of $\triangle$PQR? (2)

Section E

65. A design is made on a rectangular tile of dimensions 50 cm $\times$ 70 cm as shown in Figure. The design shows 8 triangles, each of sides 26 cm, 17 cm and 25 cm. Find the total area of the design and the remaining area of the tile. **[5]**
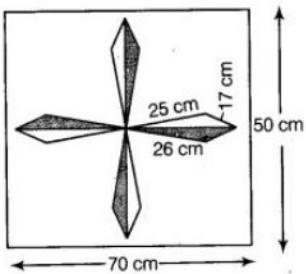
66. The perimeter of a right triangle is 24 cm. If its hypotenuse is 10 cm, find the other two sides. **[5]** Find its area by using the formula area of a right triangle. Verify your result by using Heron's formula.

67. The area of a rhombus is 480 cm^2, and one of its diagonals measures 48 cm. Find **[5]**
   i. the length of the other diagonal,
   ii. the length of each of its sides, and
   iii. its perimeter.

68. A field in the shape of a trapezium whose parallel side are 25m and 10m. The non- parallel side **[5]** are 14 m and 13 m. Find the area of the field.

69. The perimeter of a right triangle is 144 cm and its hypotenuse measures 65 cm. Find the lengths **[5]** of other sides and calculate its area. Verify the result using Heron's Formula.

70. One side of a right triangle measures 126 m and the difference in lengths of its hypotenuse and **[5]** other side is 42 cm. Find the measures of its two unknown sides and calculate its area. Verify the result using Heron's Formula.

71. The base of a triangular field is three times its altitude. If the cost of sowing the field at Rs.58 per **[5]** hectare is Rs.783, find its base and height.

72. The lengths of the sides of a triangle are 7 cm, 13 cm and 12 cm. Find the length of perpendicular **[5]** from the opposite vertex to the side whose length is 12 cm.

73. Find the percentage increase in the area of a triangle if its each side is doubled. **[5]**

74. The length of the sides of a triangle are in the ratio 3 : 4 : 5 and its perimeter is 144 cm. Find the **[5]** area of the triangle and the height corresponding to the longest side