Important Questions - Trianlges

10th Standard CBSE

Maths

Reg.No. : ☐☐☐☐☐☐

Time : 01:00:00 Hrs

Total Marks : 50

Section - A

1) In ΔABC, DE ‖ BC, find the value of x. **1**

2) In the given figure, if ∠A=90⁰, ∠B=90⁰, OB=4.5 cm, OA=6 cm and AP=4 cm, then find the QB. **1**

3) In ABC, if X and Y are points on AB and AC respectively such that $\frac{AX}{XB} = \frac{3}{4}$, AY=5 and YC=9, then state whether XY and BC parallel or not. **1**

4) In the figure of ABC, the points D and E are on the sides CA, CB respectively such that DE ‖ AB, AD=2x, DC=x+3, B#=2x-1 and CE=x, then find the value of x. **1**

5) Are two triangle with equal corresponding sides always similar?
   Two triangles having corresponding sides equal are similar. **1**

6) If ratio of corresponding sides of two similar triangles is 5 : 6, then find ratio of their areas. **1**

7) In given figure DE ‖ BC. If AD=3 cm, DB=4 cm and AD=6 cm, then find EC. **1**

8) In the given figure, if DE ‖ BC, then calculate x. **1**

9) In the figure, PQ is parallel to MN. If $\frac{K}{PM} = \frac{4}{13}$ and KN=20.4 cm, then find KQ. **1**

10) If triangle ABC is similar to triangle DEF such that 2AB=DE and BC=8 cm, then find EF. **1**

Section - B

11) An equilateral triangle is inscribed in a circle of radius 6 cm. Find its side. **2**

12) In the given figure, PS, SQ, PT and TR are 4 cm, 1 cm, 6 cm and 1.5 cm respectively.
    Prove that $ST \parallel QR$. Also, find $\frac{ar(\triangle PST)}{ar(trapezium \quad QRTS)}$ **2**
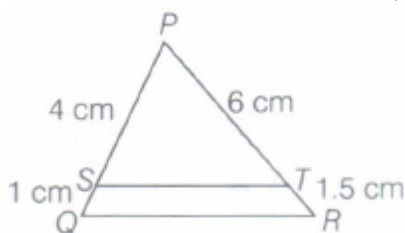
13) The sides AB and AC and the perimeter P_1 of ABC are respectively three times the corresponding sides DE and DF and the perimeter P_2 of DEF, Are the two triangles similar? If yes, find $\frac{ar(\triangle ABC)}{ar(\triangle DEF)}$ **2**

14) In the given figure, CB ‖ QR and CA ‖ PR. If AQ = 12 cm, AR = 20 cm, PB = CQ = 15 cm, calculate PC and BR. **2**

15) In given figure, D is a point on AC such that AD = 2CD, also DE ‖ AB. **2**
    Find: $\frac{ar(\triangle ACF)}{ar(\triangle BCE)}$

16) In a trapezium ABCD, diagonals AC and BD intersect at O. If AB = 3CD, then find ratio of areas of triangles COD and AOB. **2**

17) △ABC is right angled at e. If p is the length of the perpendicular from C to AB and a, b, care the lengths of the sides opposite ∠A, ∠B and ∠C respectively, then prove that $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$. **2**

18) In the given figure, $\frac{PS}{SQ} = \frac{PT}{TR}$ and ∠PST =∠PRQ. Prove that PQR is an isosceles triangle. **2**

19) In the given figure, if AD⊥BC, prove that $AB^2 + CD^2 = BD^2 + AC^2$. **2**

20) If A be the area of a right triangle and b be one of the sides containing the right angle, prove that the length of the altitude on the hypotenuse is $\frac{2Ab}{\sqrt{b^4 + 4A^2}}$ **2**

Section - C

21) P and Q are the points on sides AB and AC, respectively of △ABC. If AP = 3 cm. PB = 6 cm, AQ = 5 cm and QC = 10 cm, show that BC = 3PQ. **5**

22) Shweta prepared two posters on National Integration for decoration on Independence day on triangular sheets (say ABC and DEF). The sides AB and AC and the perimeter P_1 of △ABC are respectively four times the corresponding sides DE and DF and the perimeter P_2 of △DEF. Are the two triangular sheets similar? If yes, find $\frac{ar(\triangle ABC)}{ar(\triangle DEF)}$. What values can be indicated through celebration of national festivals? **5**

23) In the figure, ∠BED = ∠BDE and E is the middle poi.nt of Be. Prove that $\frac{AF}{CF} = \frac{AD}{BE}$. **5**

24) Prove that in a right triangle, the square of the hypotenuse is equal to sum of squares of other two sides. Using the above result, prove that, in rhombus ABCD, $4AB^2 = AC^2 + BD^2$. **5**

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