7058427775

RISE UP अॅकॅडमी

इयत्ता : 5 वी ते 10 वी
आदर्श कॉलनी, औसा रोड, बरमदे हॉस्पिटल जवळ, लातूर

Class: 10 English / Semi-English (State) Subject : Geometry Total Marks: 40

Date: Time:

10th Geometry 40 Marks

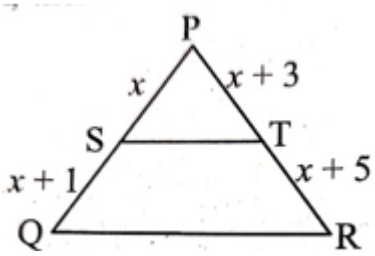
Q.1) A) Choose the correct alternative for the following questions [04]

1) The length of longest segment which can be drawn in a rectangle of length 84 cm and breadth 13 cm is -----

a) 84 cm b) 85 cm c) 86 cm d) 97 cm

2) In ΔPQR if ST || QR, then what is the value of x?

a) 1 b) 2 c) 3 d) 4



3) Out of the following which is the Pythagoras triplet?

a) (1, 5, 10) b) (3, 4, 5) c) (2, 2, 2) d) (5, 5, 2)

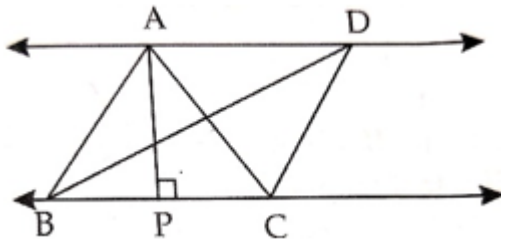
4) 11, 60, ---------- is a Pythagorean triplet.

a) 74 b) 27 c) 13 d) 61

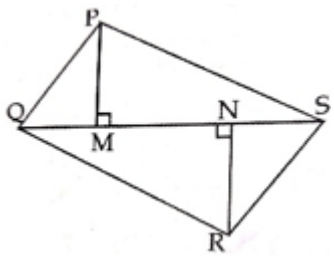
Q.1) B) Solve the following questions [04]

1) ΔABC ~ Δ DEF, $\angle A = 45^0$ and $\angle F = 60^0$ then $\angle B$ = ?

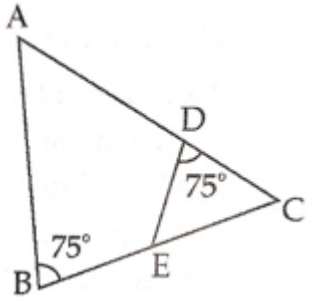
2) In adjoining figure, AP ⊥ BC, AD || BC then find A(ΔABC) : A(ΔBCD)



3) In the adjoining figure, PM = 10 cm, A(ΔPQS) = 100 sq cm, A(ΔQRS) =110 sq cm then find NR.



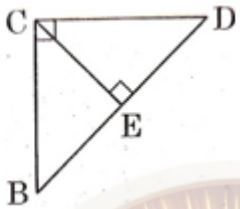
4) In adjoining figure, $\angle ABC = 75^0$, state which two triangles are similar and by which test? Also, triangles by a proper one to one correspondence.



Q.2) A) Complete any two activities [04]

1) Observe the figure and fill in the boxes.

$\Delta\square \sim \Delta\square \sim \square$ ----- [------]



2) In the figure, seg AB || seg QR, seg AR and seg BQ intersect in point P.

In ΔAPB and ΔRPQ,

$\angle BAP \cong \angle\square$ ---- [alternate angles]

$\angle APB \cong \angle RPQ$ ---- [-------]

$\therefore \Delta APB \sim \Delta RPQ$ ------ [-----]

3) Find the length of the side and perimeter of an equilateral triangle whose height is $2\sqrt{3}$ cm.

Let ΔLMN be the given equilateral triangle.

$\therefore \angle M = 60^0$ ---- [------]

$LD \perp MN$, $M - D - N$.

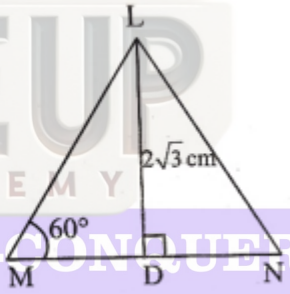
In ΔLMD, $\angle M = 60^0, \angle LDM = 90^0$

$\therefore \angle MLD = 30^0$ ----- [-------]

$\therefore \Delta LMD$ is a $30^0 - 60^0 - 90^0$ triangle.

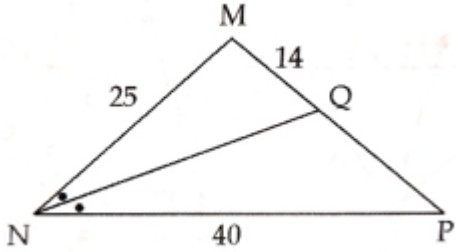
$\therefore LD = \frac{\sqrt{3}}{2} LM$ ------ [-----]

$\Rightarrow LM = \square$, Perimeter of $\Delta LMN = 3 \times$ side = $\square$



Q.2) B) Solve any Four sub questions [08]

1) Find QP using given information in the figure.



2) $\Delta ABC \sim \Delta PQR$, $A(\Delta ABC) = 81$ cm^2, $A(\Delta PQR) = 121$ cm^2. If BC = 6.3 cm, then find QR.

3) Prove that : In a right- angled triangle, the length of perpendicular segment drawn on the hypotenuse from the opposite vertex, is the geometric mean of the segments into which the hypotenuse is divided.

4) In ΔABC, point M is midpoint of side BC. If $AB^2 + AC^2 = 290$ cm^2 and AM = 8 cm, find BC.

5) In ΔRST, $\angle S = 90^0$, $\angle T = 30^0$, RT = 12 cm. Find RS and ST

Q.3) A) Complete any One activity [03]

1) In the adjoining figure, XY || seg AC. If 2AX = 3BX and XY = 9. Complete the activity to find the value of AC.

Activity: 2AX = 3BX

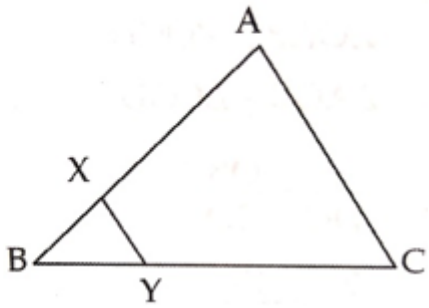
$\therefore \frac{AX}{BX} = \frac{\square}{\square}$ $\therefore \frac{AX+BX}{BX} = \frac{\square+\square}{\square}$

$\therefore \frac{AB}{BX} = \frac{\square}{\square}$

$\therefore \Delta BCA \sim \Delta BYX$ ------ (AA test)

$\therefore \frac{BA}{BX} = \frac{AC}{XY}$ ------- (c.s.s.t.)

$\therefore \frac{\square}{\square} = \frac{AC}{9}$ $\therefore AC = 22.5$ units



2) In the given figure, $\angle QRS = 90^0$, RP ⊥ SQ. If PQ = 16, RP = 10, find: i) SP ii) RQ iii) SR

Solution: i) In ΔQSR, $\angle QRS = 90^0$

And RP ⊥ SQ. $\therefore RP^2 = \square \times SP$

$\therefore SP = \square$ ----- [------]

ii) In ΔRPQ, $\angle RPQ = 90^0$

$\therefore RQ^2 = RP^2 + PQ^2$ ----- [------]

$\therefore RQ = \square$

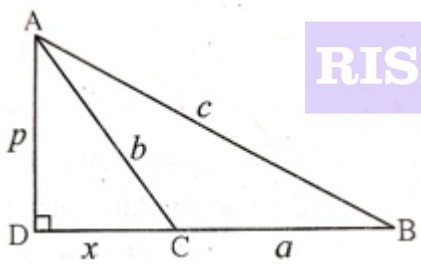
iii) In ΔSPR, $\angle SPR = 90^0$

$\therefore SR^2 = \square$ $\therefore SR = \square$

Q.3) B) Solve any Two sub questions [06]

1) Prove that: In a triangle, the angle bisector divides the side opposite to the angle in the ratio of the remaining sides.

2) In ΔABC, $\angle ACB > 90^0$, seg AD ⊥ seg BC, then prove that, $AB^2 = BC^2 + AC^2 + 2BC \times BD$.

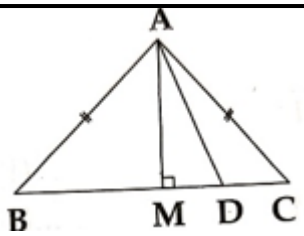


3) In ΔABC, AB = 10, AC = 7, BC = 9. Find the length of the median drawn from point C to side AB.

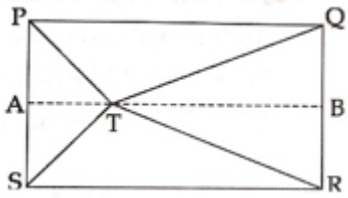
4) Sum of the squares of adjacent sides of a parallelogram is 130 cm^2 and length of one of its diagonal is 14 cm. Find length of the other diagonal.

Q.4) Solve any Two sub questions [08]

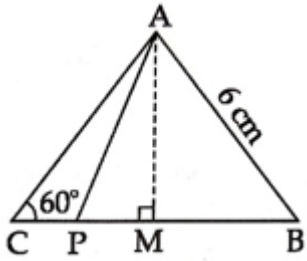
1) In ΔABC, $\angle A = 90^0$, AB = AC, D is any point on BC. Prove that, $BD^2 + CD^2 = 2AD^2$.



2) In adjoining figure, point T is in the interior of rectangle PQRS. Prove that, $TS^2 + TQ^2 = TP^2 + TR^2$



3) ΔABC is an equilateral triangle. Point P is on base BC such that, PC = 1/3 BC, if AB = 6 cm, find AP.



Q.5) Solve any One sub question [03]

1) In an isosceles ΔABC, with AB = AC, BD ⊥ AC. Prove that: $BD^2 - CD^2 = 2CD \times AD$

2) Adjacent sides of a parallelogram are 11 cm and 17 cm. if one of its diagonal is 26 cm, then find the length of its other diagonal.