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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: 20

Date: 27/07/25 | Chapter: Pythagoras Theorem & Circle | Time: 1 Hr

10th Geometry 20 Marks

Q.1) A) Choose the correct alternative for the following questions [02]

1) Out of the dates given below which date constitutes a Pythagoras triplet?
a) 15/08/17 b) 16/08/16 c) 03/05/17 d) 04/09/15

2) In ΔABC, AB= $6\sqrt{3}$, AC = 12 cm, BC = 6 cm. Find ∠A = ?
a) 30^0 b) 60^0 c) 90^0 d) 45^0

Q.1) B) Solve the following questions [01]

1) Find the diagonal of a rectangle whose sides are 35 m and 12 m.

Q.2) A) Complete any one activity [02]

1) 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 ⊥ MN, M – D – N.

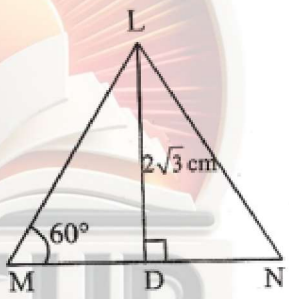
In ΔLMD, $\angle M = 60^0, \angle LDM = 90^0$

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

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

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

$\Rightarrow LM =$ □, Perimeter of ΔLMN = 3 × side = □



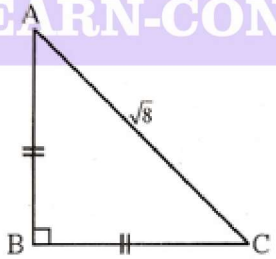
2) For finding AB and BC with the help of information in adjoining figure, complete the following activity

Solution: AB = BC --- (side opposite to congruent angle)

$\therefore \angle BAC =$ □

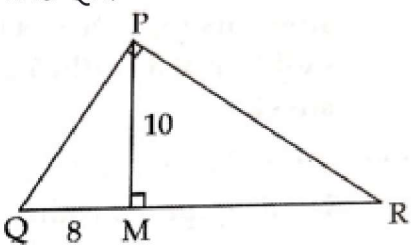
$\therefore AB = BC = \frac{□}{□} \times AC = \frac{□}{□} \times \sqrt{8}$

$= \frac{□}{□} \times 2\sqrt{2} = 2$ units

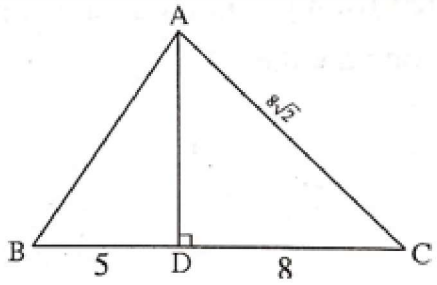


Q.2) B) Solve any One sub question [02]

1) In the adjoining figure, ∠QPR = 90^0, seg PM □ hypo QR. Q – M – R. If PM = 10, QM = 8 then find QR.



2) In figure, ΔABC, seg AD □ seg BC, ∠C = 45^0, BD = 5 and AC = $8\sqrt{2}$ then find AD and BC.



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

1) In ΔPQR, seg PS ⊥ side QR, then complete the activity to prove: $PQ^2 + RS^2 = PR^2 + QS^2$

In ΔPSQ, $\angle PSQ = 90^0$

$\therefore PS^2 + QS^2 = PQ^2$

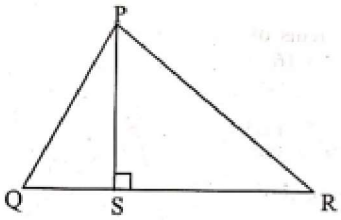
$\therefore PS^2 = PQ^2 - \square$ ------ (i)

Similarly, In ΔPSR, $\angle PSR = 90^0$,

$\therefore PS^2 + \square = PR^2$ ----- (ii)

$\therefore PQ^2 - \square = \square - RS^2$ ---- [from (i), (ii)]

$\therefore PQ^2 + \square = PR^2 + QS^2$



2) Observe the figure and fill in the blanks:

In ΔPMA and ΔPMB,

$\angle PMA = \angle PMB = 90^0$

Let seg PA ≅ -------- [∵ -------]

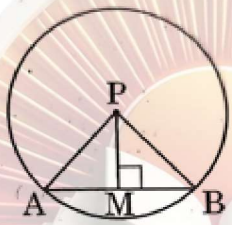
Seg PM ≅ ------ [common side]

∴ ΔPMA ≅ ΔPMB ---- [------]

Seg AM ≅ ----- [c.s.s.t.]

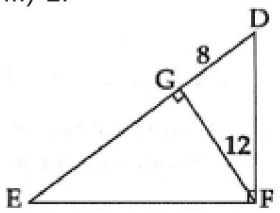
Hence, perpendicular drawn from the

Center of a circle to a chord --- the chord.

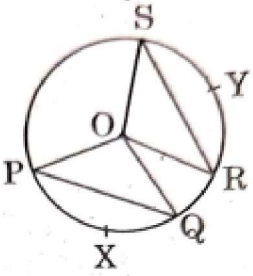


Q.3) B) Solve any One sub questions [03]

1) In the adjoining figure, ∠DFE = 90^0, FG ⊥ ED. if GD = 8, FG = 12 then find : i) EG ii) FD iii) EF

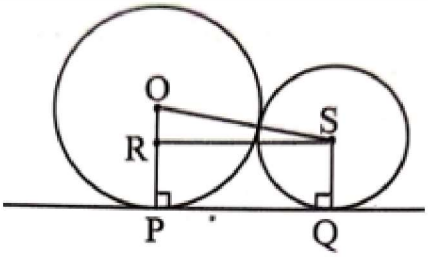


2) Prove that, In a circle (or in congruent circles), congruent chords have their corresponding arcs congruent.

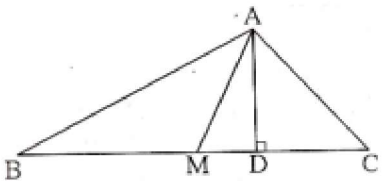


Q.4) Solve any One sub questions [04]

1) In the adjoining figure, line PQ is a common tangent to the externally touching circles and the radii of two circles are 25 cm and 9 cm. Find the length of the common tangent segment of these circles.

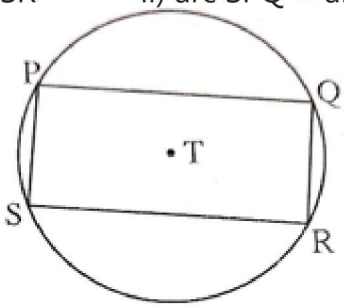


2) Apollonius theorem: In ∆ABC, if M is the midpoint of BC then $AB^2 + AC^2 = 2AM^2 + 2BM^2$



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

1) In the figure, a rectangle PQRS is inscribed in a circle with center T. Prove that, i) arc PQ ≅ arc SR ii) arc SPQ ≅ arc PQR.



2) A, B, C are any points on the circle with center O. i) Write the names of all arcs formed due to these points. ii) If m(arc BC) = 110^0 and m(arc AB) = 125^0, find measure of all remaining arcs.