VIVEK TUTORIALS

Practice Test

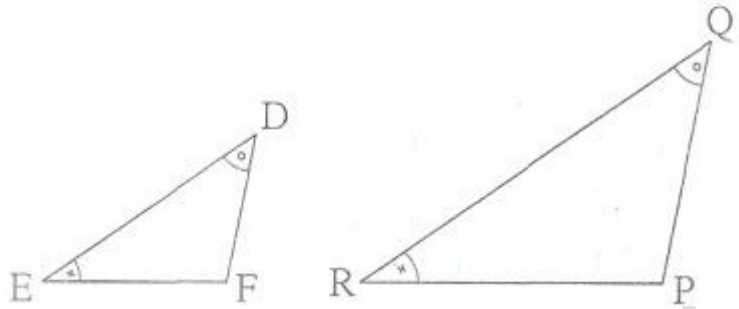
Std: SSC (E.M) **Subject: Mathematics II** **Time: 1Hrs**

Date : 30/Jul/2019 **Max Marks: 20**

Q.1 Choose the correct alternative: **3**

1) If in ΔDEF and ΔPQR, $\angle D \cong \angle Q$, $\angle R \cong \angle E$ then which of the following statements is false?

(A) $\frac{EF}{PR}=\frac{DF}{PQ}$ (B) $\frac{DE}{PQ}=\frac{EF}{RP}$ (C) $\frac{DE}{QR}=\frac{DF}{PQ}$ (D) $\frac{EF}{RP}=\frac{DE}{QR}$

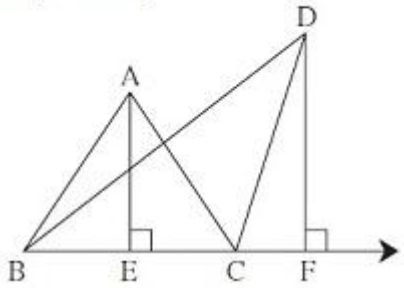


2) Find perimeter of a square if its diagonal is $10\sqrt{2}$ cm.
(A) 10 cm (B)$40\sqrt{2}$ cm (C) 20 cm (D) 40 cm

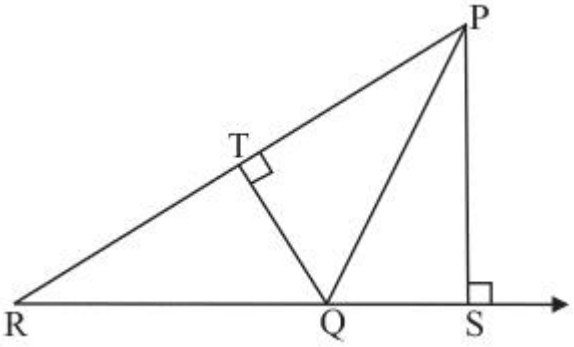
3) In ΔABC, AB = 6yfe cm, AC = 12 cm, BC = 6 cm. Find measure of $\angle A$.
(A) 30° (B) 60° (C) 90° (D) 45°

Q.2 Solve the following questions (ANY THREE) **6**

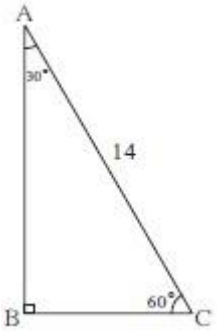
1) In below figure AE $\perp$ seg BC, seg DF $\perp$ line BC, AE = 4, DF = 6, then find $\frac{A(\Delta ABC)}{A(\Delta DBC)}$.



2) In the figure given below seg PS $\perp$ seg RQ seg QT $\perp$ seg PR. If RQ = 6, PS = 6 and PR = 12, then find QT.

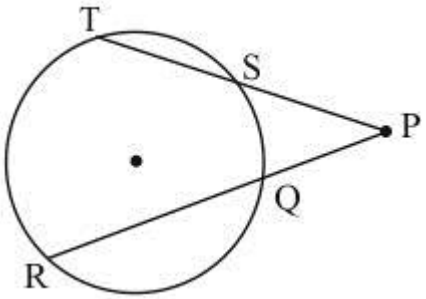


3) In the figure below. In Δ ABC, $\angle$ B= 90°, $\angle$ A= 30°, AC=14, then find AB and BC



4) Two circles having radii 3.5 cm and 4.8 cm touch each other internally. Find the distance between their centres.

5) In figure below, if PQ = 6, QR= 10, PS = 8 find TS.



Q.3 Complete the following Activities (ANY ONE) **2**

1) Δ LMN ~ ΔPQR, 9 x A(ΔPQR) = 16 x A(ΔLMN). If QR = 20 then find MN.

9 x A (ΔPQR) = □ x A(ΔLMN) .... (Given)

$\therefore \frac{9}{16} = \frac{A(\Delta LMN)}{A(\Delta \square)}$

i.e. $\frac{A(\Delta LMN)}{A(\Delta PQR)} = \frac{\square}{16}$ ..... (i)

In ΔLMN and ΔPQR, ...(Given)

$\frac{A(\Delta LMN)}{A(\Delta PQR)} = \frac{MN^2}{QR^2}$ ..... (Theorem on areas of similar triangles)

$\therefore \square = \frac{MN^2}{20^2}$

$\therefore \square = \frac{MN}{20}$ .... (Taking square roots)

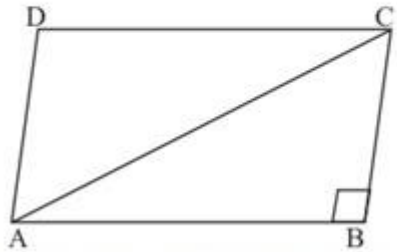
$\therefore MN = \frac{3 \times \square}{4}$

$\therefore MN = \square$

$\therefore MN = \square$ units

2) Find the diagonal of a rectangle whose length is 16 cm and area is 192 sq.cm.

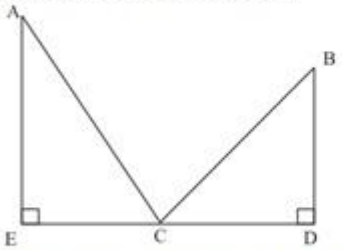
Given: 1) □ABCD is a rectangle
2) AB = 16 cm
3) A(□ ABCD) = 192 sq cm
To find: AC



A(□ ABCD) = Length x Breadth
∴ 192 = AB x ☐
∴ 192 = 16 x BC
∴ $\frac{\square}{16}$ = BC
∴ BC = ☐
In ΔABC, ∠B = ☐ [Angle of rectangle]
∴ AC^2 = ☐ + BC^2 [Pythagoras theorem]
∴ $AC^2 = 16^2 + 12^2$
$= 256 +$ ☐
∴ $AC^2 = 400$
∴ AC = ☐ [Taking square roots]
∴ Length of the diagonal is ☐

3) Walls of two buildings on either side of a street are parallel to each other. A ladder 5.8 m long is placed on the street such that its top just reaches the window of a building at the height of 4 m. On turning the ladder over to the other side of the street, its top touches the window of the other building at a height 4.2 m. Find the width of the street.

RD represent road.
AR represents first building
BD represents second building
CA & CB are two different positions of the same ladder with base C.



AR = 4.2 m, BD = 4 m, AC = BC = 5.8 m RD = ?

In ΔARC, $\angle R =$ [ ] [Given]

$\therefore AC^2 = AR^2 + CR^2$ [Pythagoras theorem]

$5.8^2 =$ [ ] $+ CR^2$

$\therefore CR^2 = 33.64 -$ [ ]

$\therefore CR^2 = 16$

$\therefore CR =$ [ ]

In ΔBDC, $\angle D = 90°$ [Given]

$\therefore BC^2 = CD^2 +$ [ ] [Pythagoras theorem]

$\therefore 5.8^2 = CD^2 + 4^2$

$\therefore 33.64 = CD^2 + 16$

$\therefore CD^2 = 33.64 -$ [ ]

$\therefore CD^2 = 17.64$

$\therefore CD =$ [ ]

$AD = AC + CD$ [A – C – D]

$\therefore AD = 4 + 4.2$

$\therefore AD =$ [ ]

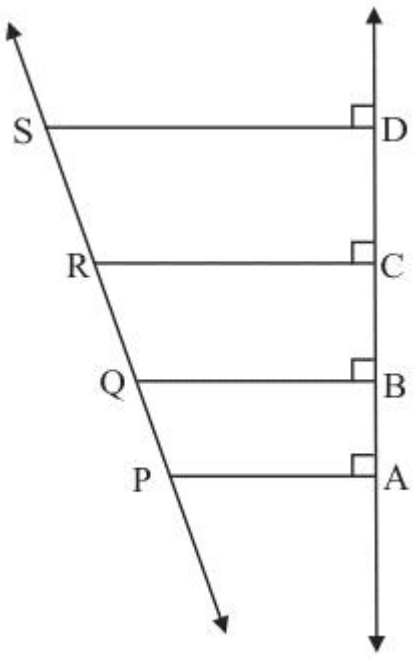
Breadth of the street is [ ]

Q.4 Solve the following questions (ANY THREE) **9**

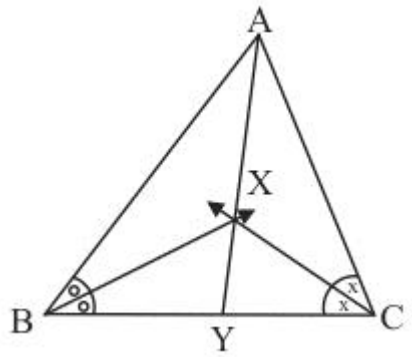
1) In Δ ABC point Δ on side BC is such that DC = 6, BC = 15. Find A(Δ ABD) : A(Δ ABC) and A(Δ ABD) : A(Δ ADC) .

2) If a line parallel to a side of a triangle intersects the remaining sides in two distinct points, then the line divides the sides in the same proportion.

3) In the figure below, seg PA, seg QB, seg RC and seg SD are perpendicular to line AD. AB = 60, BC = 70, CD = 80, PS = 280 then find PQ, QR and RS.



4) In figure below, bisectors of ∠B and ∠C of ΔABC intersects side BC in point X. Line AX intersects side BC in point Y. AB = 5, AC = 4, BC = 6 then find



5) In a triangle if the square of one side is equal to the sum of the squares of the remaining two sides, then the triangle is a right angled triangle.

-------- All the Best --------