



SUCCESS KEY TEST SERIES

X (English)

(Unit test-1 Math-2 (ch-1,2))

Mathematics Part - II-

DATE:

TIME: 2 hrs

MARKS: 30

SEAT NO:

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Q.1 A) Choose the correct alternative.

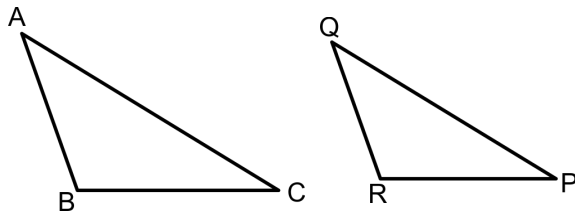
(5)

- 1) For a given $\triangle ABC$, $\triangle ABC \sim \triangle ABC$. This property is known as
 a. Property of reflexivity b. Property of symmetry
 c. Property of congruency d. Property of transitivity

- 2) In $\triangle ABC$ and $\triangle PQR$, in a one to one correspondence.

$$\frac{AB}{QR} = \frac{BC}{PR} = \frac{CA}{PQ} \text{ then}$$

- a. $\triangle PQR \sim \triangle ABC$ b. $\triangle PQR \sim \triangle CAB$ c. $\triangle CBA \sim \triangle PQR$ d. $\triangle BCA \sim \triangle PQR$

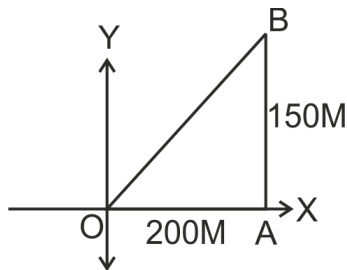


- 3) $\triangle ABC$ and $\triangle XYZ$ are equilateral triangles.

$$A(\triangle ABC) : A(\triangle XYZ) = 25 : 36. \text{ Find } \left(\frac{AC}{XZ}\right)^2$$

- a. $\frac{5}{6}$ b. $\frac{6}{5}$ c. $\frac{25}{36}$ d. $\frac{36}{25}$

- 4)



A girl walks 200 m towards East and then she walks 150 m towards North. The distance of the girl starting point is

- a. 350 m b. 250 m c. 300 m d. 225 m

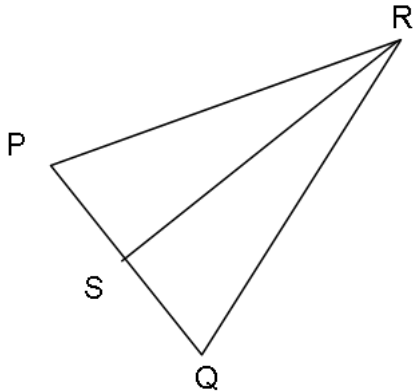
- 5) In $\triangle PQR$, seg $ST \parallel$ seg MR . Which of the following is true?

- a. $\frac{PQ}{RS} = \frac{PR}{RT}$ b. $\frac{A(\triangle PQR)}{A(\triangle PST)} = \frac{PQ^2}{PS^2}$ c. $\frac{A(\triangle PQR)}{A(\triangle PST)} = \frac{PQ}{PS}$ d. None of above

B) Solve the following questions. (Any two)

(4)

- 1) In $\triangle PQR$, seg RS bisects $\angle R$. If $PR = 15$, $RQ = 20$, $PS = 12$ then find SQ.

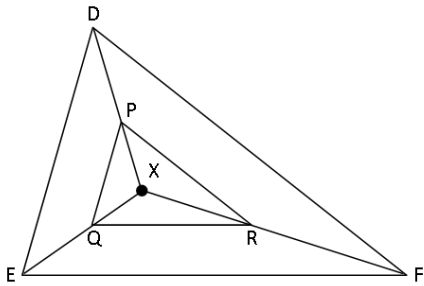


- 2) Identify, with reason, if the following is Pythagorean triplet. 3, 5, 4
- 3) In $\angle PQR = 90^\circ$, seg $QN \perp$ seg PR, $PN = 9$, $NR = 16$. Find QN.

Q.2 A) Complete the following Activities. (Any two)

(4)

- 1) In the figure, X is any point in the interior of triangle. Point X is joined to vertices of triangle. Seg $PQ \parallel$ seg DE, seg $QR \parallel$ seg EF. Fill in the blanks to prove that, seg $PR \parallel$ seg DF.

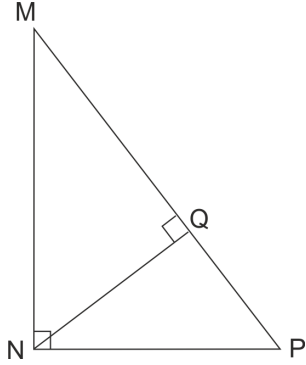


In $\triangle XDE$, $PQ \parallel DE$... _____
 \therefore _____ = _____ ... (I) (Basic proportionality theorem)
 In $\triangle XEF$, $QR \parallel EF$... _____
 \therefore _____ = _____ ... (II) (Basic proportionality theorem)
 \therefore _____ = _____ ... from (I) and (II)
 \therefore seg $PR \parallel$ seg DF ... (Converse of basic proportionality theorem)

- 2) If $\triangle ABC \sim \triangle PQR$ and $AB : PQ = 2 : 3$, then fill in the blanks.

$$\frac{A(\triangle ABC)}{A(\triangle PQR)} = \frac{\quad}{\quad} = \frac{2^2}{3^2} = \frac{\quad}{\quad}$$

- 3) In $\angle MNP = 90^\circ$, seg $NQ \perp$ seg MP , $MQ = 9$, $QP = 4$, find NQ .



In $\triangle MNP$,

$\angle MNP = 90^\circ$... (Given)

seg $NQ \perp$ hypotenuse MP ... (Given)

\therefore By property of geometric mean

$NQ^2 = MQ \times \underline{\hspace{2cm}}$

$\therefore NQ^2 = \underline{\hspace{2cm}}$

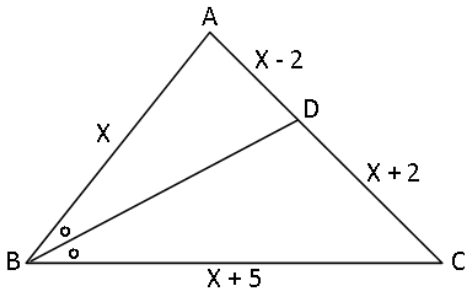
$\therefore NQ^2 = \underline{\hspace{2cm}}$

$\therefore NQ = \underline{\hspace{2cm}}$... (Taking square roots on both the sides)

B) Solve the following questions. (Any two)

(4)

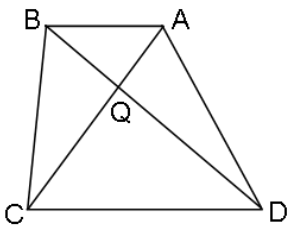
- 1) In $\triangle RST$, $\angle S = 90^\circ$, $\angle T = 30^\circ$, $RT = 12$ cm then find RS and ST .
- 2) Prove that: In a right-angled triangle, the perpendicular segment to the hypotenuse from the opposite vertex, is the geometric mean of the segments into which the hypotenuse is divided.
- 3) In $\triangle ABC$, seg BD bisects $\angle ABC$. If $AB = x$, $BC = x + 5$, $AD = x - 2$, $DC = x + 2$, then find the value of x .



Q.3 Solve the following questions. (Any two)

(6)

- 1) Diagonals of a quadrilateral $ABCD$ intersect in point Q . If $2QA = QC$, $2QB = QD$, then prove that $DC = 2AB$.



- 2) In a $\triangle ABC$, D and E are points on the sides AB and AC respectively such that $AD = 5.7$ cm, $BD = 9.5$ cm, $AE = 3.3$ cm, and $AC = 8.8$ cm. Is $DE \parallel BC$? Justify your answer.

3) In $\triangle PQR$, $\angle PQR = 90^\circ$, seg $QS \perp$ seg PR then find x, y, z .

Q.4 Solve the following questions. (Any one)

(4)

1) The ratio of the intercepts made on a transversal by three parallel lines is equal to the ratio of the corresponding intercepts made on any other transversal by the same parallel lines.

2) Prove that :

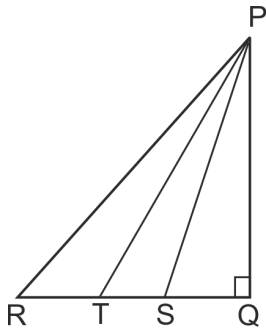
“If a line parallel to a side of a triangle intersects the remaining sides in two distinct points, then the line divides the sides in the same proportion.”

Q.5 Solve the following questions. (Any one)

(3)

1) In an isosceles triangle ABC , $AB = AC$, and D is a point on BC produce, Prove that $AD^2 = AC^2 + BD \cdot CD$

2)



In the given figure, $\triangle PQR$ is right angled at Q and points S and T trisect side QR . Prove that $8PT^2 = 3PR^2 + 5PS^2$