FAROOQ HIGH SCHOOL FOR GIRLS

Date : 14/10/19 | I Semester Exam – October 2019 | Time : 2 Hrs

Std: X A | Subject : Geometry | Marks : 40

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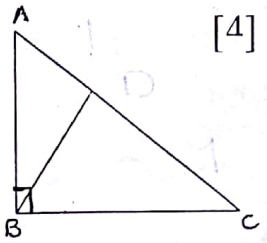
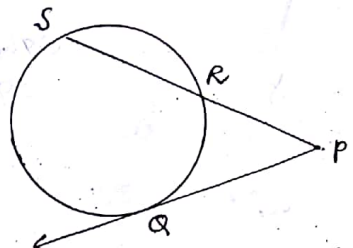
Q.1 (A) Solve the following questions. (Any four) [4]

1) In right angled ΔABC, BD⊥AC. If AD = 4, DC = 9, Then find BD.



2) In figure, ray PQ touches the circle at Point Q. PQ = 12, PR = 8, find PS.



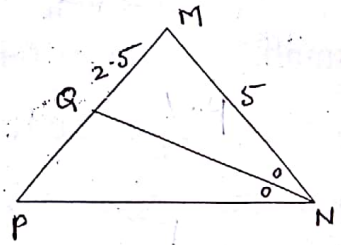
3) Draw a circle at radius 3.6 cm. Draw a tangent to the circle at any point on it without using the circle.

4) If two circles with radius 8 cm and 3 cm respectively, touch internally then find the distance between their centers.

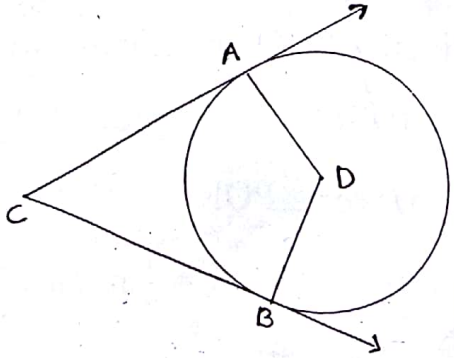
5) ΔDEF ~ΔMNK, if DE = 5, MN = 6 then find the value of $\frac{A(\Delta DEF)}{A(\Delta MNK)}$

Q.1 (B) Solve the following questions. (Any two) [4]

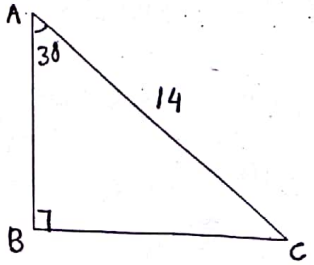
1) Seg NQ is the bisector of ∠N of ΔMNP if MN = 5, PN = 7, MQ = 2.5 then find QP.



2) In the adjoining figure circle with centre D touches the sides of ∠ACB at A and B. If ∠ACB = 52° find measure of ∠ADB.



3) In the adjoining fig. In ΔABC ∠B = 90°, ∠A = 30°, AC = 14 then find AB and BC.



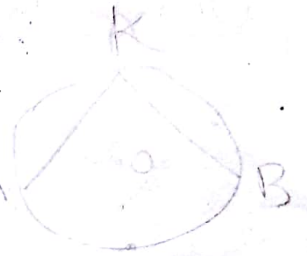
Q.2 (A) Choose the correct alternative. [4]

1) In $\Delta ABC \sim \Delta PQR$ and $4A(\Delta ABC) = 25A(\Delta PQR)$ then $AB:PQ = ?$

(A) 4:25 (B) 2:5 (C) 5:2 (D) 25:4

2) $\angle ACB$ is inscribed in arc ACB of a circle with centre O. if $\angle ACB = 65°$ find m(arc ACB).

(A) 65° (B) 130° (C) 295° (D) 230°



3) $\sin\theta \times \operatorname{cosec}\theta = ?$

(A) $\sqrt{2}$ (B) $\frac{1}{2}$ (C) 0 (D) 1

4) Out of the following which is a Pythagorean triplet?

(A) (5,12,14) (B) (3,4,2) (C) (8,15,17) (D) (5,5,2)

Q.2 (B) Solve the following questions. (Any two) [4]

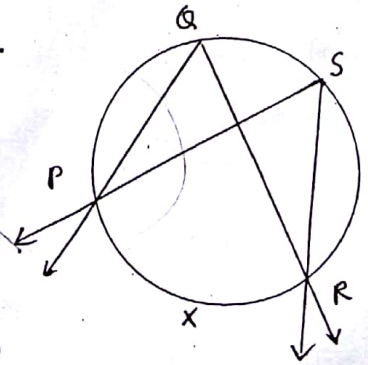
1) Draw a circle of radius 3.3 cm. Draw a chord PQ of length 6.6 cm. Draw tangents to the circle at point P and Q. Write your observation about the tangents.

2) □ MRPN is cyclic, $\angle R = (5x - 13)°$, $\angle N = (4x + 4)°$. Find measures of $\angle R$ and $\angle N$.

3) Ratio of corresponding sides of two similar triangles is 2:5. If the area of the smaller triangle is 64 cm^2 then what is the area of the bigger triangle.

Q.3 (A) Complete the following activities. [8]

1) Prove that angles inscribed in the same arc are congruent.



Given $\angle PQR$ and $\angle PSR$ are inscribed in the same arc.

Arc PXR is intercepted by the angles.

To prove: $\angle PQR \cong \angle PSR$

Proof: $m\angle PQR = \frac{1}{2}$ m (arc PXR) ---- I [ ]

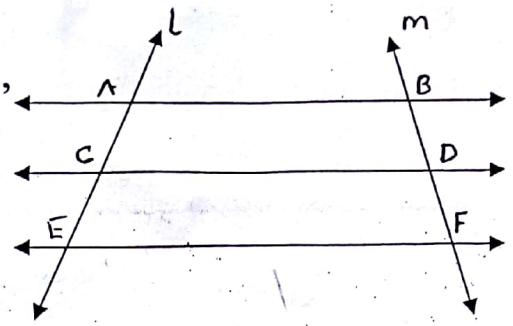
$m\angle$ [ ] $= \frac{1}{2}$ m (arc PXR) ---- II [ ]

$m\angle$ [ ] = m $\angle PSR$ ---- From I and II

$\angle PQR \cong \angle PSR$ (Angles equal in measure are congruent.)

2) In the above figure line AB || line CD || line EF, line L and line m are its transversals.

If AC = 6, CE=9, BD = 8 then complete the following activity to find DF.



Activity: $\frac{AC}{DF} = \frac{}{DF}$ (_____)

$\frac{6}{9} = \frac{}{DF}$

DF = ☐

3) In the adjoining figure O is the centre of the circle. ∠ABC is inscribed in arc ABC and ∠ABC = 65°. Complete the following activity to find the measure of ∠AOC.

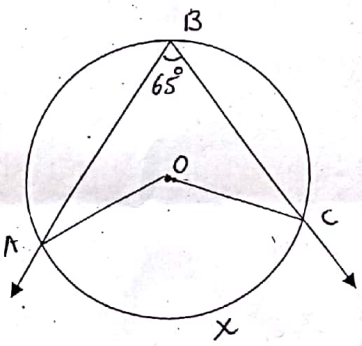
Activity: $m\angle ABC = \frac{1}{2}$ m ☐ (_____)

☐ × 2 = m (arc AXC)

m (arc AXC) = ☐

∠AOC = m (arc AXC) (_____)

∴ ∠AOC = ☐



4) In ΔABC, ray BD bisects ∠ABC seg ED || side BC.

Then prove that $\frac{AB}{BC} = \frac{AE}{EB}$

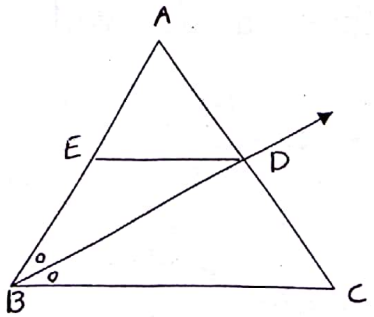
Proof: In ΔABC, ray BD bisects ∠ABC

$\frac{AB}{BC} = \frac{\square}{\square}$ ---- I ☐

In ΔABC, seg ED || side BC

$\frac{AE}{EB} = \frac{AD}{DC}$ ---- II ☐

$\frac{AB}{\square} = \frac{\square}{EB}$ ---- From I and II



Q.4 Solve the following questions. (Any three) [9]

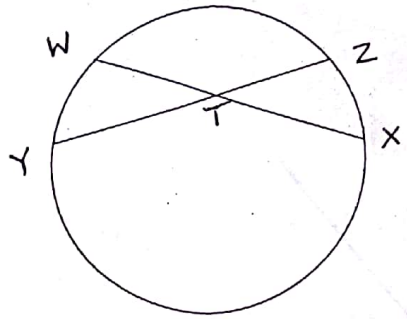
1) Draw a circle with radius 4.2 cm. Construct tangents to the circle from a point at a distance of 7 cm from the centre.

2) In ΔABC seg AP is a median. If BC= 18 $AB^2 + AC^2 = 260$. Find AP.

3) If $\cot\theta = \frac{40}{9}$ find the values of $\cos\theta$, $\operatorname{cosec}\theta$ and $\sin\theta$.

4) In figure m(arc WY)= 44° , m(arc ZX) = 68°

then find :



(i) measure of $\angle ZTX$.

(ii) If WT = 4.8, TX = 8.0, YT = 6.4. Find TZ.

(iii) If WX = 25, YT = 8, YZ = 26. Find WT.

Q.5 Solve the following questions. (Any one) [4]

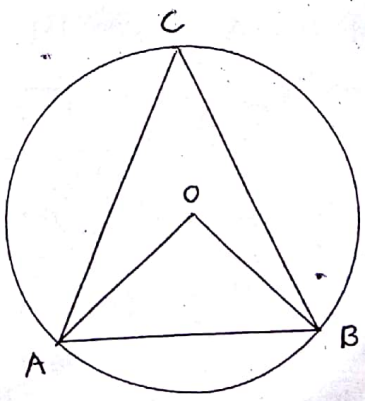
1) Prove that : In a right angled triangle, the square of the hypotenuse is equal to the sum of the squares of remaining two sides.

2) Prove that : The sum of the squares of the diagonal of a parallelogram is equal to the sum of the squares of its sides.

Q.5 Solve the following questions. (Any one) [3]

1) $\Delta RST \sim \Delta XYZ$, In ΔRST RS= 4.5 cm, $\angle RST = 40°$, ST = 5.7 cm. Construct ΔRST and ΔXYZ such that $\frac{RS}{XY} = \frac{3}{5}$.

2) In figure in a circle with centre O, length of chord AB is equal to the radius of the circle. Find measures of each of the following.



(i) $\angle AOB$ (ii) $\angle ACB$

(iii) arc AB (iv) m (arc ACB)

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