Class: X **March 2021 Sample Paper (Reduced Syllabus)**

Marks: 40 **Maths 2 (Set 1)** **2hours**

Q.1. A) Solve Multiple Choice questions **(1 mark each)** **4 M**

1. 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

2. Out of the following which is the Pythagorean triplet?

(A) (1, 5, 10) (B) (3, 4, 5) (C) (2, 2, 2) (D) (5, 5, 2)

3. The number of tangents that can be drawn to a circle at a point on the circle is ..... .

(A) 3 (B) 2 (C) 1 (D) 0

4. If ΔABC ~ ΔPQR and $\frac{AB}{PQ} = \frac{7}{5}$, then .....

(A) ΔABC is bigger. (B) ΔPQR is bigger.

(C) Both triangles will be equal. (D) Can not be decided

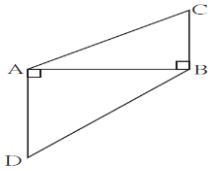
Q.1. B) Solve the following **(1 mark each)** **4 M**

1. Write section formula and midpoint formula.

2. In figure BC ⊥ AB, AD ⊥ AB,

BC = 4, AD = 8, then find

A(Δ ABC) : A(Δ ADB)



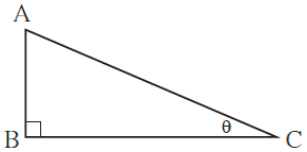
3. Find $\sin\theta \times \operatorname{cosec}\theta$= ?

4. Two circles having radii 3.5 cm and 4.8 cm touch each other internally.

Find the distance between their centres.

Q.2. A) Complete 2 activities out of 3 **(2 marks each)** **4 M**

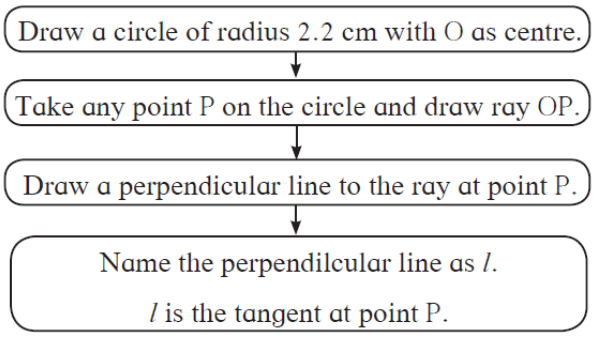
1. Fill in the blanks with reference to figure



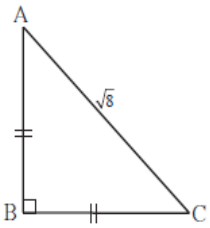
$\sin\theta = \frac{\square}{\square}$, $\cos\theta = \frac{\square}{\square}$,

$\tan\theta = \frac{\square}{\square}$

2. Complete the following activity to draw a tangent to a circle at a point on the circle.



3. For finding AB and BC with the help of information given in figure complete following activity.



AB = BC ..... ☐

∴ ∠BAC = ☐

∴ AB = BC = ☐ × AC

= ☐ × $\sqrt{8}$

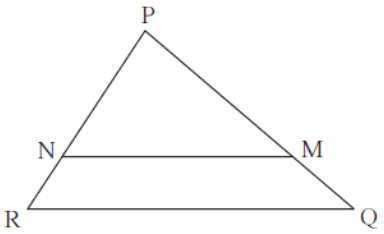
= ☐ × $2\sqrt{2}$

= ☐

Q.2. B) Solve Any 4 out of 5 **(2 marks each)** **8 M**

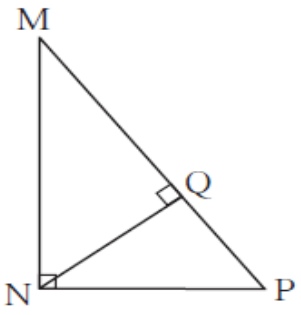
1. Prove: $\sec^2\theta + \text{cosec}^2\theta = \sec^2\theta \times \text{cosec}^2\theta$

2. In Δ PQR, PM = 15, PQ = 25
PR = 20, NR = 8. State whether line NM is parallel to side RQ. Give reason.



3. □MRPN is cyclic, ∠R = (5x - 13)°, ∠N = (4x + 4)°. Find measures of ∠R and ∠N.

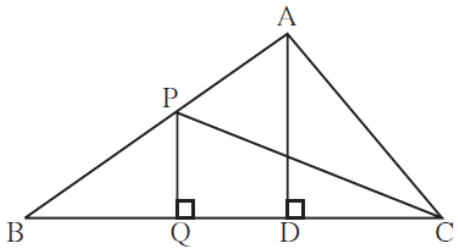
4. In figure, ∠MNP = 90°,
seg NQ ⊥ seg MP,
MQ = 9,
QP = 4, find NQ.



5. Find the distance between points A(2, 3), B(4, 1).

Q.3. A) Complete 1 activity out of 2 **(3 marks each)** **3 M**

1.



In adjoining figure PQ ⊥ BC,

AD ⊥ BC then find following ratios.

(i) $\frac{A(\Delta PQB)}{A(\Delta PBC)} = \frac{\square}{\square}$ (ii) $\frac{A(\Delta PBC)}{A(\Delta ABC)} = \frac{\square}{\square}$

(iii) $\frac{A(\Delta ABC)}{A(\Delta ADC)} = \frac{\square}{\square}$ (iv) $\frac{A(\Delta ADC)}{A(\Delta PQC)} = \frac{\square}{\square}$

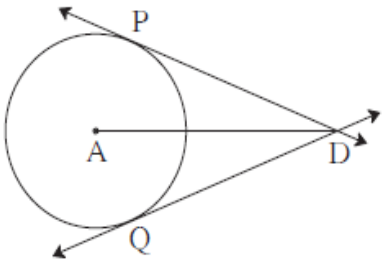
2. Complete the following activity.

Tangent segment theorem

Theorem : Tangent segments drawn from an external point to a circle are congruent.

Observe the adjoining figure. Write 'given' and 'to prove.'

Draw radius AP and radius AQ and complete the following proof of the theorem.



Proof : In Δ PAD and Δ QAD,

seg PA ≅ _____ radii of the same circle.

seg AD ≅ seg AD _____

∠APD = ∠AQD = 90° ..... tangent theorem

∴ Δ PAD ≅ Δ QAD _____

∴ seg DP ≅ seg DQ _____

Q.3. B) Solve Any 2 out of 4 **(3 marks each)** **6 M**

1. State and Explain Basic Proportionality Theorem.

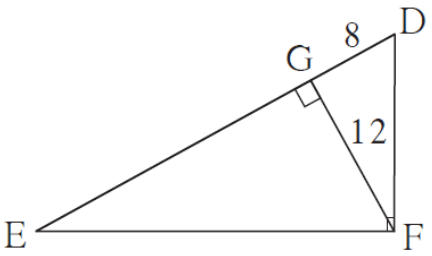
2. Show that points (1, 7), (4, 2), (-1, -1) and (-4, 4) are vertices of a square.

3. Draw a circle of radius 3.4 cm and centre E. Take a point F on the circle. Take another point A such that E-F-A and FA = 4.1 cm. Draw tangents to the circle from point A.

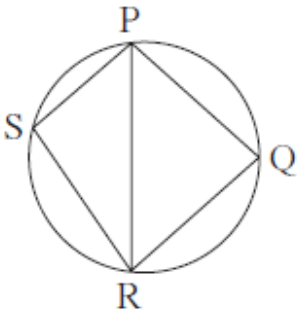
4. If $\tan\theta = \frac{3}{4}$, find the values of sec θ and cos θ.

Q.4) Solve Any 2 out of 3 **(4 marks each)** **8 M**

1. In figure, ∠ DFE = 90°,
FG ⊥ ED, If GD = 8, FG = 12,
find
(i) EG
(ii) FD and (iii) EF



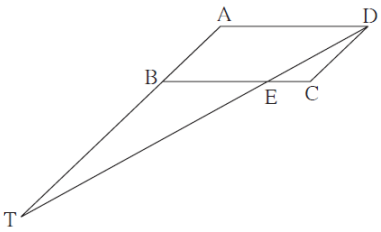
2. In figure, □ PQRS is cyclic.
side PQ ≅ side RQ. ∠PSR = 110°,
Find -
(i) measure of ∠PQR
(ii) *m*(arc PQR)
(iii) *m*(arc QR)
(iv) measure of ∠PRQ



3. Δ ABC ~ Δ LBN. In ΔABC, AB = 5.1 cm, ∠B = 40°, BC = 4.8 cm.
Construct Δ ABC and Δ LBN such that $\frac{AC}{LN} = \frac{4}{7}$.

Q.5) Solve Any 1 out of 2 **(3 marks each)** **3 M**

1. □ ABCD is a parallelogram point E is on side BC. Line DE intersects ray AB in point T. Prove that
DE × BE = CE × TE.



2. Find the co-ordinates of the points of trisection of the line segment AB with A(2, 7) and B(-4, -8).

Chapter wise weightage *		
Chp No	**Chapter Name**	**Total Marks**
1	**Similarity**	**13**
2	**Pythagoras Theorem**	**9**
3	**Circle**	**11**
4	**Geometric Construction**	**10**
5	**Co ordinate Geometry**	**9**
6	**Trigonometry**	**8**
7	**Mensuration**	**-**
		60

*** As per reduced syllabus 2020 – 2021**

***Note: Ch 7 is completely omitted**