

Seat No.

Nayak's Tutorials



Practice Paper -1

Mathematics- Paper II

Marks: 40

Duration: 2 Hrs.

Q.P Set CODE - A

Instructions :

- (1) All questions / activities are compulsory.
- (2) Use of calculators is not allowed.
- (3) The numbers to the right of the question indicate full marks.
- (4) In case of MCQs, only the first attempt will be evaluated and will be given credit
- (5) For every MCQ, the correct alternative (A), (B), (C) or (D) of answers with subsequent number is written as an answer.

Q1.A) Multiple Choice Questions

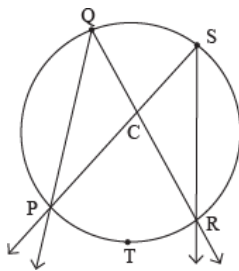
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- 1 To draw the similar triangle, we are using
(a) property of congruence
(b) inscribed angle theorem
(c) property of similarity
(d) property of alternate angles
- 2 What is side and perimeter of square having diagonal $5\sqrt{2}$ cm.
a. 5 and $20\sqrt{5}$ cm b. 5 and 20 cm
c. 10 cm and $20\sqrt{5}$ cm d. $10\sqrt{2}$ cm and 20 cm
- 3 Find the curved surface area of frustrum having radii 4 cm and 5 cm. The slant height of frustrum is 7 cm.
a. 198 cm^2 b. 200 cm^2 c. 144 cm^2 d. 186 cm^2
- 4 The ratio of corresponding sides of similar triangles is 5 : 7, then what is the ratio of their areas?
a. 25 : 49 b. 49 : 25 c. 5 : 7 d. 7 : 5

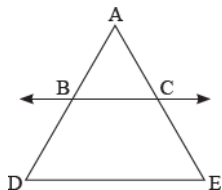
Q1.B) Answer the following.

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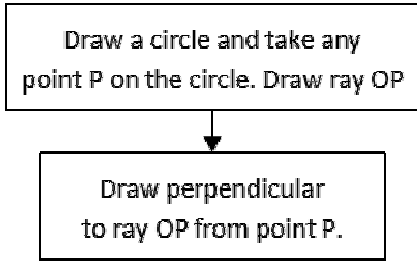
- 1 Identify, with reason, if the following is Pythagorean triplet. 4, 9, 12
- 2 In the figure if $\angle PQR = 50^\circ$ then find $\angle PSR$.



- 3 Radius of a circle is 10 cm. Area of a sector is 100 cm^2 . Find the area of its corresponding major sector. ($\pi = 3.14$).
- 4 In fig line BC || line DE, AB = 2, BD = 3, AC = 4 and CE = x, then find the value of x.



1



2 Find the slopes of the lines passing through the given points.

C(5, -2) , D(7, 3)

Let C \equiv (5, -2) \equiv (x₁, y₁) D \equiv (7, 3) \equiv _____

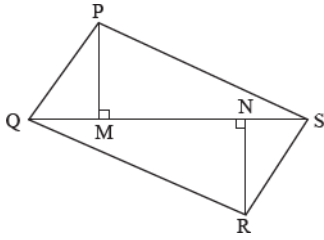
Slope of line CD = _____

= _____

= _____

\therefore Slope of line CD =

- 3 In fig. $PM = 10$ cm, $A(\Delta PQS) = 100$ sq cm $A(\Delta QRS) = 110$ sq cm then $NR = ?$



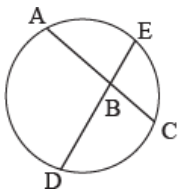
ΔPQS and ΔQRS having seg QS common base. Areas of two triangles whose base are common, are in proportion of their corresponding heights.

$$\begin{aligned} \therefore \frac{A(\Delta PQS)}{A(\Delta QRS)} &= \frac{PM}{NR} \\ \therefore \frac{100}{110} &= \frac{10}{NR} \\ \therefore NR &= \frac{1100}{100} \\ \therefore NR &= 11 \text{ cm} \end{aligned}$$

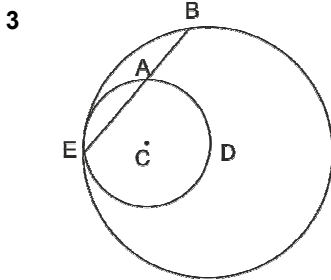
Q.2B) Answer the following (Any Four)

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- 1 In figure, chords AC and DE intersect at B . If $\angle ABE = 108^\circ$, $m(\text{arc } AE) = 95^\circ$, find $m(\text{arc } DC)$.



- 2 Draw any circle. Take any point A on it and construct tangent at A without using the centre of the circle.



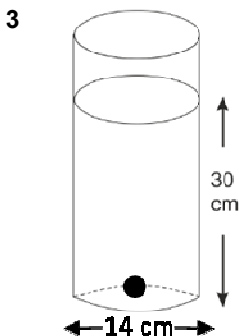
In the figure circles with centres C and D touch internally at point E . D lies on the inner circle. Chord EB of the outer circle intersects inner circle at point A . Prove that, $\text{seg } EA \cong \text{seg } AB$.

- 4 A person is standing at a distance of 80m from a church looking at its top. The angle of elevation is of 45° . Find the height of the church.
- 5 Construct a tangent to a circle with centre P and radius 3.2 cm at any point M on it.

Q3A) Solve the following (Any Two)

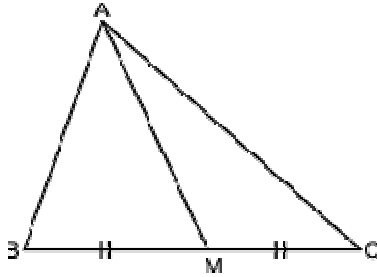
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- 1 Determine whether the given points are collinear.
 $L(1,2)$, $M(5,3)$, $N(8,6)$
- 2 If $\sin \theta = \frac{7}{25}$ then find the values of $\cos \theta$ and $\tan \theta$



As shown in the figure, a cylindrical glass contains water. A metal sphere of diameter 2 cm is immersed in it. Find the volume of the water.

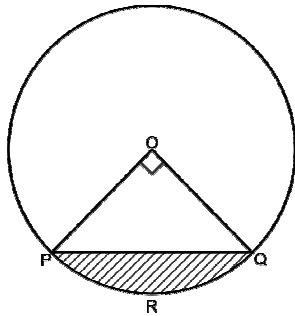
- 4 In $\triangle ABC$, point M is the midpoint of side BC. If, $AB^2 + AC^2 = 290 \text{ cm}^2$, $AM = 8$, find BC



Q3B) Attempt the following (Activity)(Any One)

3

- 1 In the figure, O is the centre of the circle. $\angle POQ = 90^\circ$. The area of the shaded region is 126 cm^2 . Find the radius of the circle.



Area of the segment = _____ - Area of $\triangle POQ$
= _____

$$\therefore 126 = \frac{11}{14} \cdot \frac{1}{2} \dots (\text{_____} = 1)$$

$$\therefore 126 = r^2 \frac{11}{14} \cdot \frac{1}{2}$$

$$\therefore 126 = r^2 \frac{11 \cdot 7}{14}$$

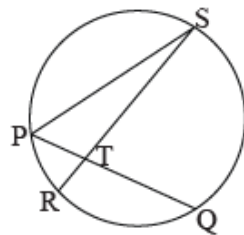
$$\therefore 126 = r^2 \frac{4}{14}$$

$$\therefore r^2 = \frac{126 \times 14}{4}$$

$$= \text{_____}$$

The radius of the circle is _____.

- 2 In the alongside figure, chord PQ and chord RS intersect each other at point T. If $\angle STQ = 58^\circ$ and $\angle PSR = 24^\circ$, then complete the following activity to verify:
 $\angle STQ = \frac{1}{2} [m(\text{arc PR}) + m(\text{arc SQ})]$



In $\triangle PTS$,

$$\angle SPQ = \angle STQ - \angle \text{_____} \quad \dots \text{ (Exterior angle theorem)}$$

$$\therefore \angle SPQ = 34^\circ$$

$$\therefore m(\text{arc QS}) = 2 \times \text{_____}^\circ = 68^\circ \quad \dots \text{_____}$$

$$\text{Similarly, } m(\text{arc PR}) = 2\angle PSR = \text{_____}^\circ$$

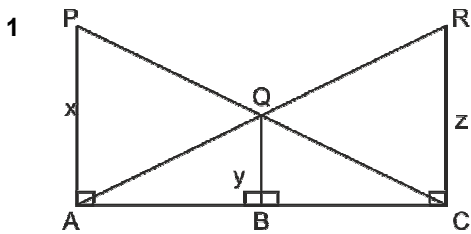
$$\therefore \frac{1}{2} [m(\text{arc QS}) + m(\text{arc PR})] = \frac{1}{2} \times (68^\circ + 48^\circ) = 58^\circ \quad \dots \text{ (I)}$$

$$\text{But } \angle STQ = 58^\circ \quad \dots \text{ (II), given}$$

$$\therefore \frac{1}{2} [m(\text{arc PR}) + m(\text{arc QS})] = \angle \text{_____} \quad \text{From (I) and (II)}$$

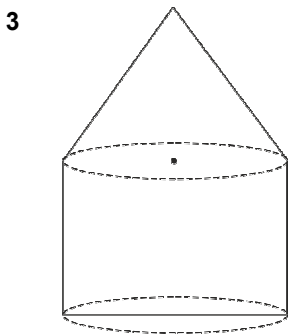
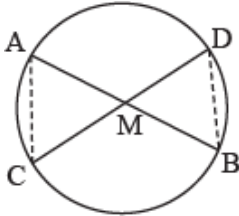
Q4) Answer the following (Any Two)

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In the above figure, seg PA, seg QB and seg RC are perpendicular to seg AC. From the information given in the figure, prove that : $\frac{1}{x} + \frac{1}{z} = \frac{1}{y}$

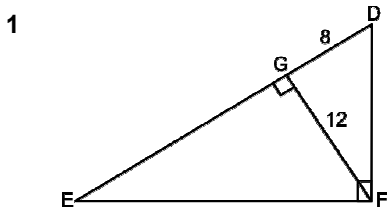
- 2 The chords AB and CD of the circle intersect at point M in the interior of the same circle then prove that $CM \times BD = BM \times AC$.



A cylinder and a cone have equal bases. The height of the cylinder is 3 cm and the area of its base is 100 cm^2 . The cone is placed upon the cylinder. Volume of the solid figure so formed is 500 cm^3 . Find the total height of the figure.

Q5) Answer the following (Any One)

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In figure, $\angle DFE = 90^\circ$, $FG \perp ED$, if $GD = 8$, $FG = 12$, find (1) EG (2) FD and (3) EF

- 2 Find the co-ordinates of the points of trisection of the segment joining the points A (2, - 2) and B (- 7, 4).