Nayak's Tutorials

Way to Excellence

Practice Paper -1
Mathematics– Paper II

Marks: 40
Duration: 2 Hrs.

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   **4**

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?
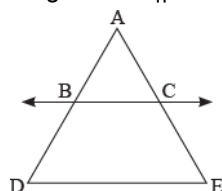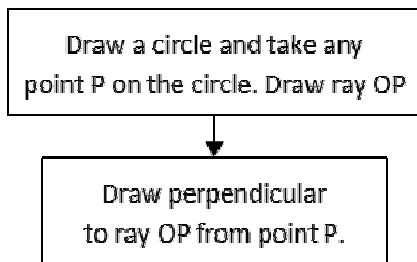a. 25 : 49   b. 49 : 25   c. 5 : 7   d. 7 : 5

Q1.B)Answer the following.   **4**

1 Identify, with reason, if the following is Pythagorean triplet. 4, 9, 12

2 In the figure if ∠PQR = 50° then find ∠PSR.
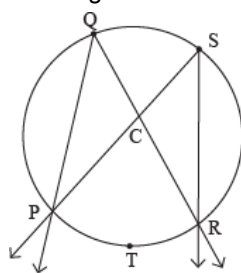
3 Radius of a circle is 10 cm. Area of a sector is 100 cm^2. Find the area of its corresponding major sector. (π = 3.14).

4 In fig line BC || line DE, AB = 2, BD = 3, AC = 4 and CE = x, then find the value of x.

Q2A)Attempt the following (Activity)(Any Two)   **4**

1

Draw a circle and take any point P on the circle. Draw ray OP

↓

Draw perpendicular to ray OP from point P.

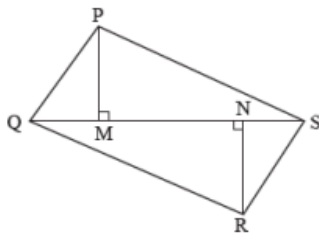**2** Find the slopes of the lines passing through the given points.

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

Let C $\equiv$ (5, -2) $\equiv$ (x_1,y_1) D $\equiv$ (7, 3) $\equiv$ _____
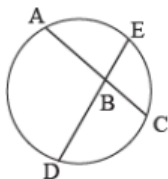
Slope of line CD = _____

$=$ _____

$=$ _____

∴ Slope of line CD = _____

3 In fig. PM = 10 cm, A (ΔPQS) = 100 sq cm A (ΔQRS) = 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.

∴ $\dfrac{A(\Delta PQS)}{A(\Delta QRS)} = \dfrac{\cdots\cdots}{NR}$

∴ $\dfrac{100}{110} = \dfrac{\cdots\cdots}{NR}$

∴ NR $= \dfrac{\frac{1100}{100}}{}$

∴ NR =....... cm

Q.2B)Answer the following (Any Four)   **8**

1 In figure, chords AC and DE intersect at B. If ∠ABE = 108°, m(arc AE) = 95°, find m(arc DC).

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

3
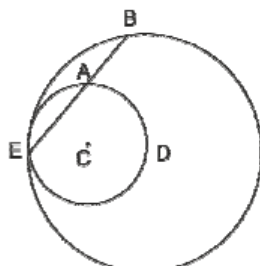
In the figure circles with centres C and D touch internally at point E. D lies on the inner circle. Chord EB of the outer circle intersects inner circle at point A. Prove that, seg EA $\cong$ seg AB.

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.
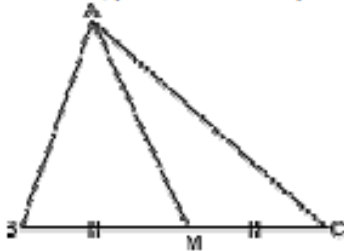
Q3A)Solve the following (Any Two)   **6**

1 Determine whether the given points are collinear.
L(1,2) , M(5,3) , N(8,6)

2 If $\sin\theta = \dfrac{7}{25}$ than find the values of $\cos\theta$ and $\tan\theta$

3
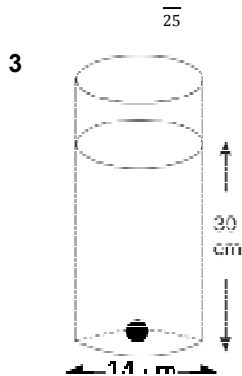
As shown in the figure, a cylindrical glass contains water. A metal sphere of diameter 2 cm is immersed in it. Find the volume of the water.

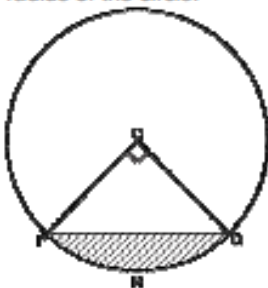**4** In □ABC, point M is the midpoint of side BC. If, $AB^2 + AC^2 = 290$ cm², AM = 8, find BC

Q3B)Attempt the following (Activity)(Any One)   **3**

1 In the figure, O is the centre of the circle. ∠POQ = 90°. The area of the shaded region is 126 cm². Find the radius of the circle.

Area of the segment =_____ - Area of □POQ

∴   = _____

∴   126 = _____ ... (_____ = 1)

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

∴ $126 = r^2 \frac{11 - 7}{14}$

∴ $126 = r^2 \frac{4}{14}$

∴ $r^2 = \frac{126 \times 14}{4}$

     = _____

The radius of the circle is_____.

2 In the alongside figure, chord PQ and chord RS intersect each other at point T. If ∠STQ = 58° and ∠PSR = 24°, then complete the following activity to verify:

∠STQ = $\frac{1}{2}$ [m (arc PR) + m (arc SQ)]
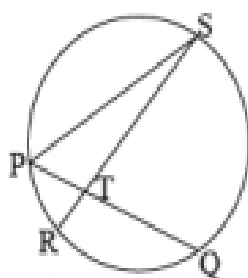
In △PTS,

∠SPQ = ∠STQ − ∠_____   ... (Exterior angle theorem)

∴   ∠SPQ = 34°

∴   m(arc QS) = 2 × _____° = 68°   ... _____

Similarly, m(arc PR) = 2∠PSR = _____°

∴ $\frac{1}{2}$ [m(arc QS) + m(arc PR)] = $\frac{1}{2}$ × (68°+48°) = 58°   ... (I)

But ∠STQ = 58°   ... (II), given

∴ $\frac{1}{2}$[m(arc PR) + m (arc QS)] = ∠_____   From (I) and (II)

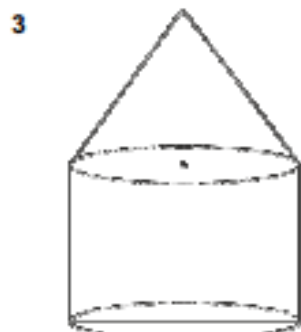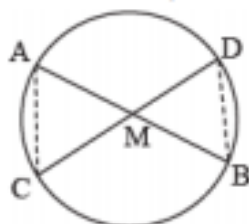Area of the segment =_____- Area of ▢POQ

**Q4)Answer the following(Any Two)**   **8**

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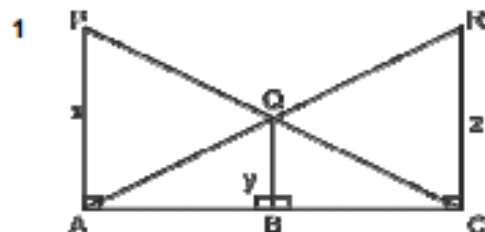
In the above figure, seg PA, seg QB and seg RC are perpendicular to seg AC. From the information given in the figure, prove that : $\frac{1}{x}$ + $\frac{1}{z}$ = $\frac{1}{y}$

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

3

A cylinder and a cone have equal bases. The height of the cylinder is 3 cm and the area of its base is 100 cm².The cone is placed upon the cylinder. Volume of the solid figure so formed is 500 cm³. Find the total height of the figure.

Q5)Answer the following (Any One)

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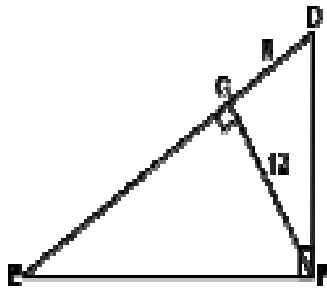
In figure, $\angle DFE = 90°$, $FG \perp ED$, if GD = 8, FG = 12, find (1) EG (2) FD and (3) EF

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