



SUCCESS KEY TEST SERIES

X- Semi English
(Unit test- 4 Math-2 (Ch- 7))

Mathematics Part - II-

DATE:

TIME: 1 hrs

MARKS: 20

SEAT NO:

Q.1 A) Choose the correct alternative.

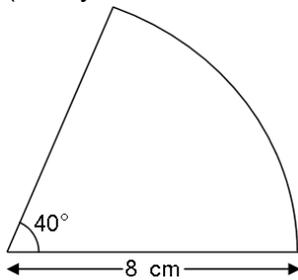
(2)

- 1) Find the side of a cube of volume 1 m^3 .
a. 1 cm b. 10 cm c. 100 cm d. 1000 cm
- 2) If $r = 7 \text{ cm}$, find the length of the arc when the corresponding central angle is 90° .
a. 11 cm b. 7 cm c. 4 cm d. 22 cm

B) Solve the following questions. (Any one)

(2)

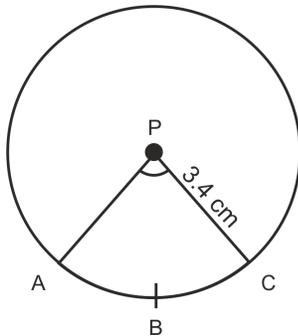
- 1) Prove, $A = \frac{1}{2}Cr$, for a circle having radius, circumference and area r , C and A respectively.
- 2) Find the perimeter of each of the given sector.
(Give your answers in terms of π)



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

(4)

1)



In figure, radius of circle is 3.4 cm and perimeter of sector $P-ABC$ is 12.8 cm . Find $A(P-ABC)$.

Given : Radius of circle = $r = 3.4 \text{ cm}$
Perimeter of sector = 12.8 cm

: Perimeter = length of arc + $2 \times$ _____

\therefore Length of arc = _____ - $2 \times$ radius of circle

$$= 12.8 - 2 \times 3.4$$

length of arc

$$= \underline{\hspace{2cm}}$$

... (1)

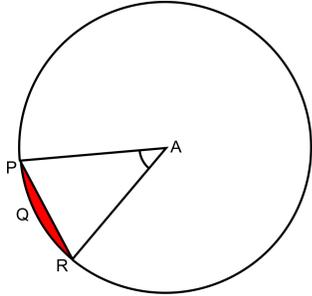
We know that, area of sector = $\frac{\text{length of arc} \times \text{radius of circle}}{2}$

$$A(P-ABC) = \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}} \text{ cm}^2$$

A(P-ABC) is _____ cm²

- 2) In the figure, if A is the centre of the circle. $\angle PAR = 30^\circ$, $AP = 7.5$, find the area of the segment PQR ($\pi = 3.14$)



The radius of the circle (r) = $AP = 7.5$ m(arc PQR) = $\angle PAR = \theta = 30^\circ$

Area of the segment PQR = r^2

$$\begin{aligned}
 &= r^2 \left(\frac{\pi\theta}{360} - \frac{\sin\theta}{2} \right) \\
 &= \text{_____}^2 \left[\frac{\pi \times 30}{360} - \frac{\sin 30}{2} \right] \\
 &= \left(\frac{15}{2} \right)^2 \left(\frac{\pi}{12} - \frac{1}{4} \right) \\
 &= \frac{225}{4} \times \text{_____} \\
 &= \frac{225 \times 0.14}{4 \times 12} \\
 &= \text{_____} \\
 &= 9.3 \times \text{_____} \\
 &= \text{_____} \text{ cm}^2
 \end{aligned}$$

- 3) A tank of cylindrical shape has radius 2.8 m and its height 3.5m. Complete the activity to find how many litres of water the tank will contain.

Capacity of water tank

= Volume of cylindrical tank

$$= \pi r^2 h$$

$$= \frac{22}{7} \times 2.8 \times 2.8 \times \text{_____}$$

$$= \text{_____} \text{ m}^3$$

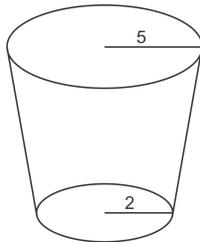
$$= \text{_____} \times 1000 \text{ litre}$$

$$= \text{_____} \text{ litre}$$

B) Solve the following questions. (Any one)

(2)

1)



Radii of the top and the base of a frustum of a cone are 5 cm and 2 cm respectively. Its height is 9 cm. Find its volume. ($\pi = 3.14$)

- 2) The area of a sector of a circle of 6 cm radius is 15π sq.cm. Find the measure of the arc and length of the arc corresponding to the sector.

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

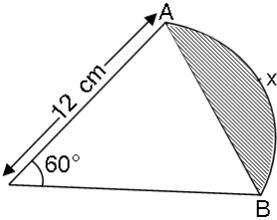
(3)

- 1) Find the area of the shaded region. ($\pi = 3.14$, $\sqrt{3} = 1.73$)

Given: radius (r) = 12 cm

Central angle (θ) = 60°

To find: Area of shaded region



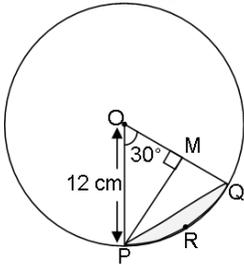
- 2) In the figure, $m\angle POQ = 30^\circ$ and radius $OP = 12$ cm.

Find the following (Given $\pi = 3.14$)

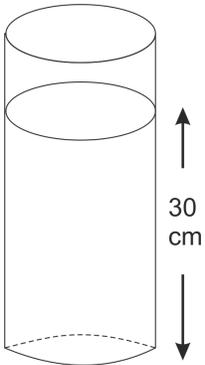
i. Area of sector O-PRQ

ii. Area of $\triangle OPQ$

iii. Area of segment PRQ



- 3)



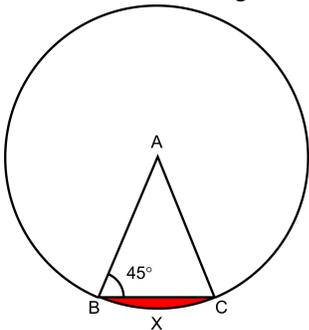
As shown in the figure, a cylindrical glass contains water. A metal sphere of diameter 2 cm is immersed in it. Find the volume of the water.

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

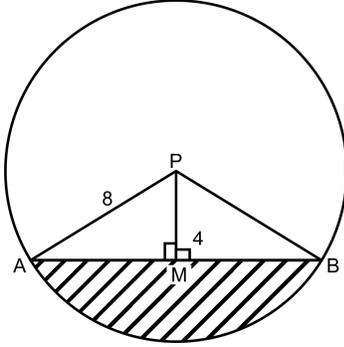
(4)

- 1) In figure, A is the centre of the circle. $\angle ABC = 45^\circ$ and $AC = 7\sqrt{2}$ cm.

Find the area of segment BXC.

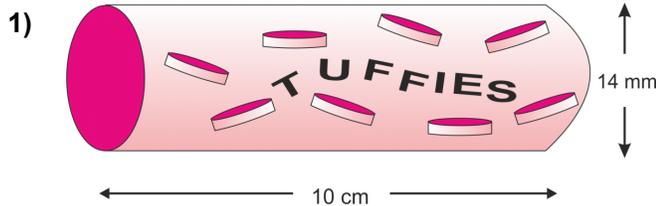


- 2) In the figure, seg AB is a chord of a circle with centre P.
 If PA = 8 cm and distance of chord AB from the centre P is 4 cm, find the area of the shaded portion.
 ($\pi = 3.14$, $\sqrt{3} = 1.73$)



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

(3)



In the figure, a cylindrical wrapper of flat tablets is shown. The radius of a tablet is 7 mm and its thickness is 5 mm. How many such tablets are wrapped in the wrapper ?

- 2) A cylinder of radius 12 cm contains water up to the height of 20 cm.
 A spherical iron ball is dropped into the cylinder and thus the water level is raised by 6.75 cm.
 Find the radius of the spherical iron ball.

