SUCCESS KEY TEST SERIES

X (English)

(Unit test- 4 Math-2 (Ch- 7))

Mathematics Part - II-

Success Key
Test Series

Success Key

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 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)

40°

8 cm

Q.2 A) **Complete the following Activities. (Any two)** (4)

1)

P

3.4 cm

A   C

B

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 cm

    Perimeter of sector   = 12.8 cm

    : Perimeter = length of arc + 2 × _____

∴   Length of arc = _____ - 2×radius of circle

    = 12.8 - 2×3.4

    length of arc   = _____   ... (1)

We know that, area of sector = $\dfrac{\text{length of arc} \times \text{radius of circle}}{2}$
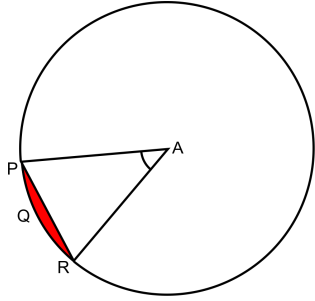
    A(P-ABC)= _____

    = _____ cm^2

A(P-ABC) is _____ cm²

2) In the figure, if A is the centre of the circle. ∠PAR = 30°, AP = 7.5,
find the area of the segment PQR (π = 3.14)

The radius of the circle (r) = AP = 7.5 m(arc PQR) = ∠PAR = θ = 30°

Area of the segment PQR = r²

$$= r^2 \left(\frac{\pi\theta}{360} - \frac{\sin\theta}{2} \right)$$

$$= \underline{\quad}^2 \left[\frac{\pi \times 30}{360} - \frac{\sin 30}{2} \right]$$

$$= \left(\frac{15}{2} \right)^2 \left(\frac{\pi}{12} - \frac{1}{4} \right)$$

$$= \frac{225}{4} \times \underline{\quad}$$

$$= \frac{225 \times 0.14}{4 \times 12}$$

$$= \underline{\quad}$$

$$= 9.3 \times \underline{\quad}$$

$$= \underline{\quad} \ cm^2$$

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

= πr²h

$$= \frac{22}{7} \times 2.8 \times 2.8 \times \underline{\quad}$$

= _____ m³

= _____ × 1000 litre

= _____ litre

B) Solve the following questions. (Any one) (2)

1)
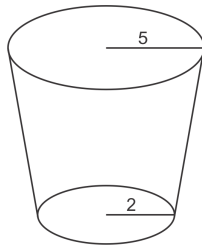
Radii of the top and the base of a frustum of

a cone are 5 cm and 2 cm respectively. Its

height is 9 cm. Find its volume. (π = 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.
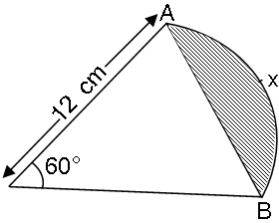
Q.3 **Solve the following questions. (Any one)** **(3)**

1) Find the area of the shaded region. (π = 3.14, $\sqrt{3}$ = 1.73)
Given: radius (r) = 12 cm
Central angle (θ) = 60°
To find: Area of shaded region

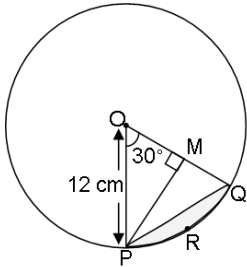**2)** In the figure, m$\angle$POQ = 30° and radius OP = 12 cm.
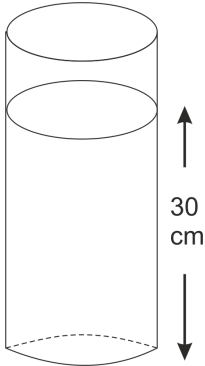Find the following(Given π = 3.14)
i. Area of sector O-PRQ
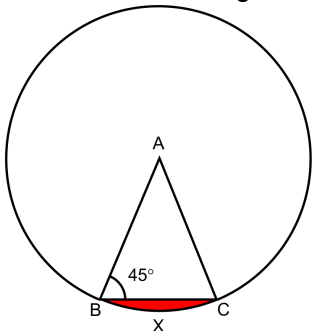ii. Area of $\triangle$OPQ
iii. Area of segment PRQ

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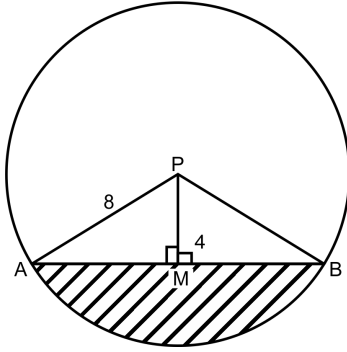
Q.4 **Solve the following questions. (Any one)** **(4)**

1) In figure, A is the centre of the circle. $\angle$ABC = 45° and AC = $7\sqrt{2}$ cm.
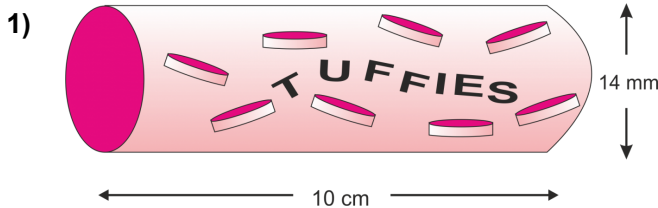Find the area of segment BXC.

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)**

1)

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.