MATHS

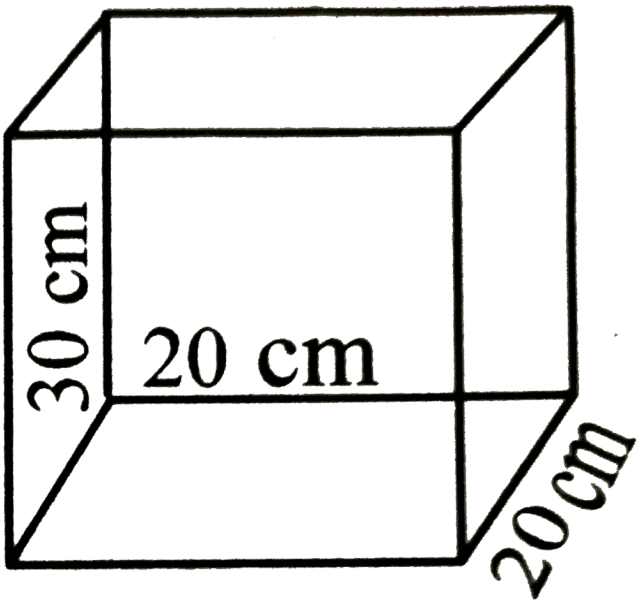
BOOKS - TARGET PUBLICATION

MENSURATION

Examples

1. The length, breadth and height of an oil can are 20 cm, 20 cm and 30 cm respectively as shown in the adjacent figure. How much oil

will it contain? (1 lite = 1000 cm^3)



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2. The adjoining figure shows the measures of a Joker's cap. How much cloth is needed to make such a cap ?

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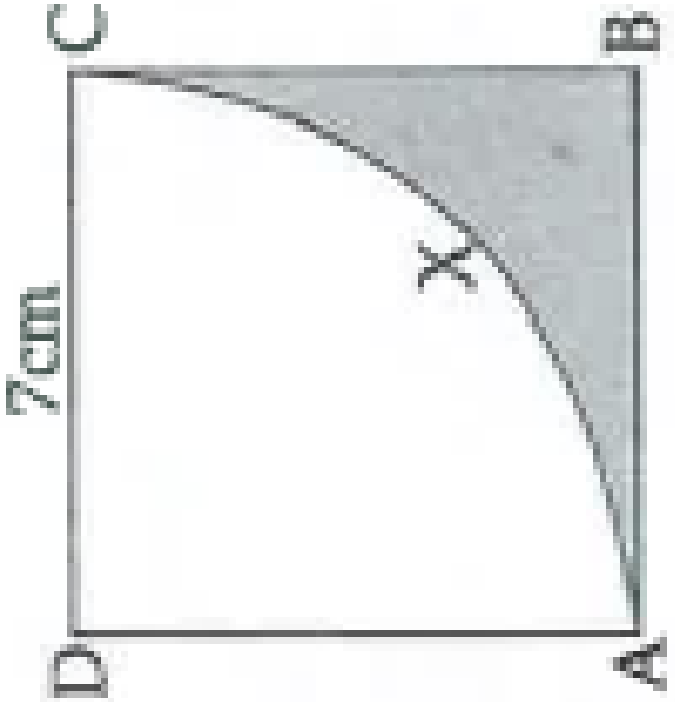
3. In the adjoining figure, $\square ABCD$ os a square with side 7 cm. With centre D and radius DA, sector D -AXC is drawn. Find the

area of shaded portion.



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Practice Set 7 1

1. Find the volume of cone if the radius of its base is 1.5 cm and its perpendicular height is 5 cm.

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2. Find the volume of the shpere of diameter 6 cm. $(\pi = 3.14)$

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3. Find the total surface area of a cylinder if the radius of its base is 5 cm and height is 40 cm.

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4. Find the surface area of sphere of radius 7 cm.

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5. The dimensions of a cuboid are 44 cm, 21 cm, 12 cm. It is melted and a cone of heigth 24 cm is made. Find the radius of its base.

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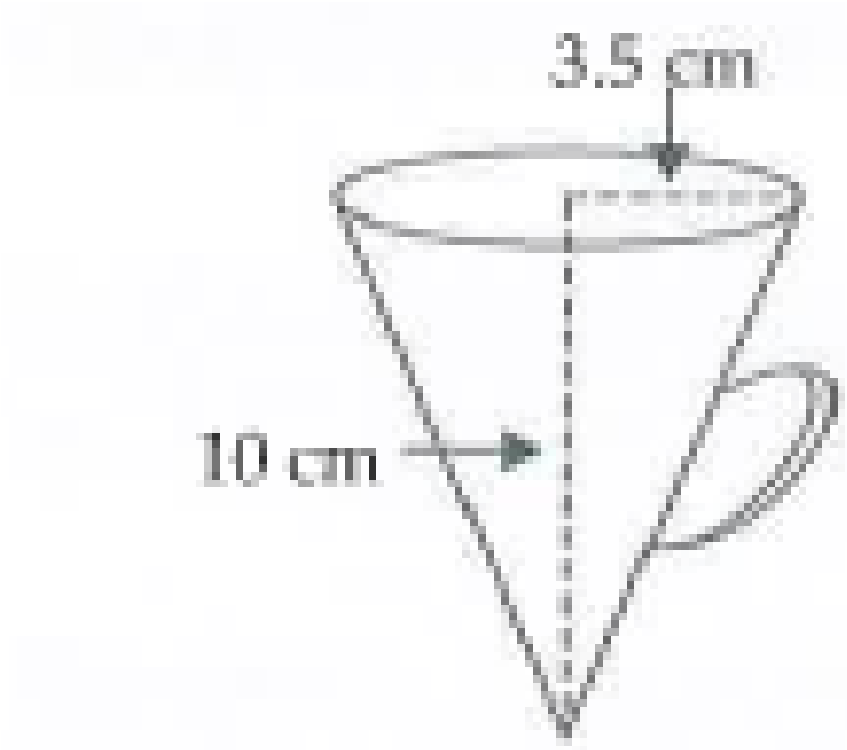
6. Observe the measures of pots in below figure. How many jugs of water can the cyindrical pot hold?


3.5 cm
10 cm


10

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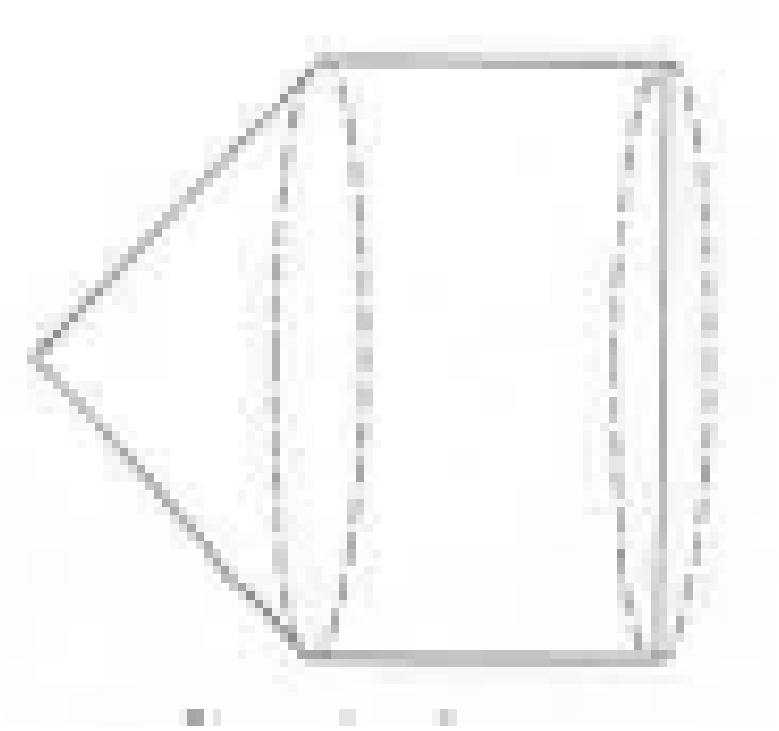
7. A cylinder and a cone have equal bases. The height of the cylinder is 3 cm and the area of its base is $100cm^2$. The cone is placed upon the cylinder. Volume of the solid figure so formed is $500cm^3$. Find the total height of

figure



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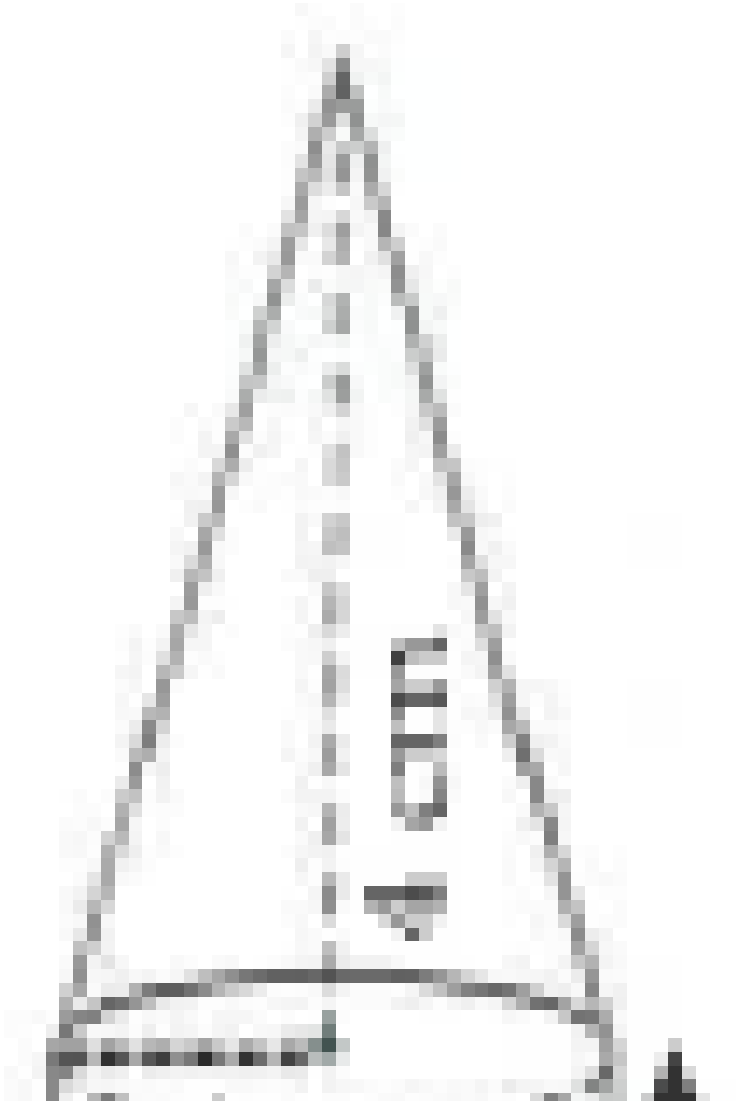
8. In below figure, a toy made from a hemishpere, a cylinder and a cone is shown. Find the total area of the toy.



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

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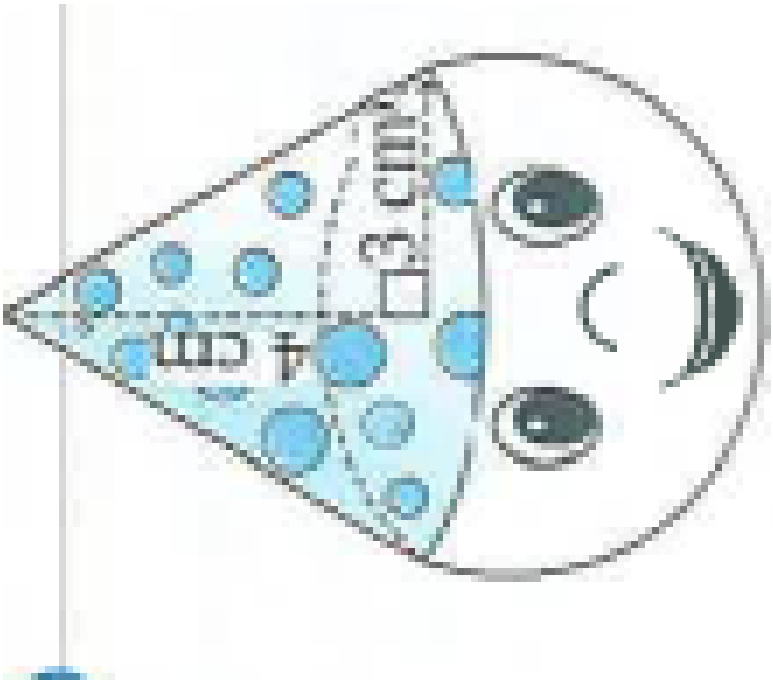
10. The adjoining figure shows a toy. Its lower part is a hemisphere and the upper part is a cone. Find the volume and the surface area of the toy from the measures shown in the figure. $(\pi = 3.14)$



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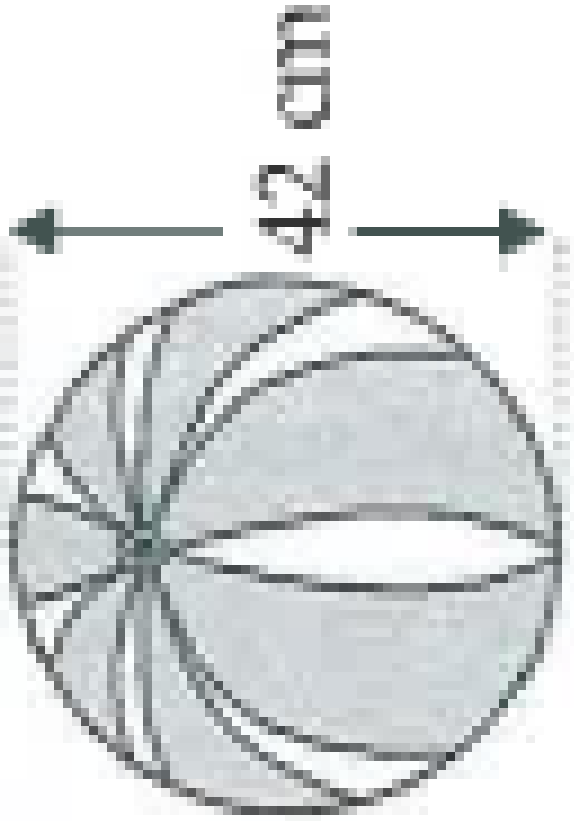
11. Find the surface area and the volume of a beach ball shown in the figure.



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Practice Set 7 2

1. The radii of two circular ends of frustum shaped bucket are 14 cm and 7 cm. Height of the bucket is 30 cm. How many litres of water it can hold? (1 litre = 1000 cm^3)

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2. The radii of ends of a frustum are 14 cm and 6 cm respectively and its height is 6 cm. Find its (i) curved surfaces area (ii) total surface area.

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3. The radii of ends of a frustum are 14 cm and 6 cm respectively and its height is 6 cm. Find its (ii) Total surface area

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4. The radii of ends of a frustum are 14 cm and 6 cm respectively and its height is 6 cm. Find its (iii) Volume $(\pi = 3.14)$.

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5. The circumferences of circular faces of a frustum are 132 cm and 88 cm and its height is 24 cm. Find curved surface area of frustum. $\left(\pi = \frac{22}{7}\right)$

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Practice Set 7 3

1. Radius of a circle is 10 cm. Measure of an arc of the circle 54°. Find the area of the sector associated with the arc. $(\pi = 3.14)$

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2. Measure of an arc of a circle is 80 cm and its radius is 18 cm. Find the length of the arc

$(\pi = 3.14)$

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3. Radius of a sector of a circle is 3.5 cm and length of its arc is 2.2 cm. Find the area of the sector.

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4. Radius of a circle is 10 cm. Area of a sector of the circle is $100cm^2$. Find the area of its

corresponding major sector. $(\pi = 3.14)$

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5. Area of sector of a circle of radius 15 cm is 30 cm^2. Find the length of the arc of the sector.

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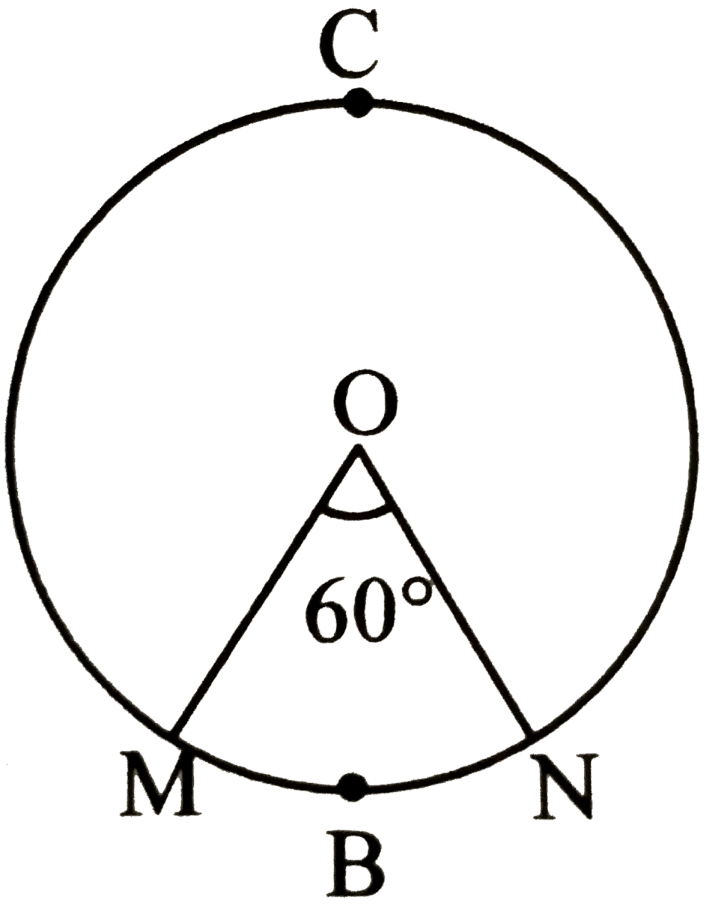
6. In the adjoninog figure , radius of the circle is 7 cm and m (arc MBN) = 60° find



Area of the circle.

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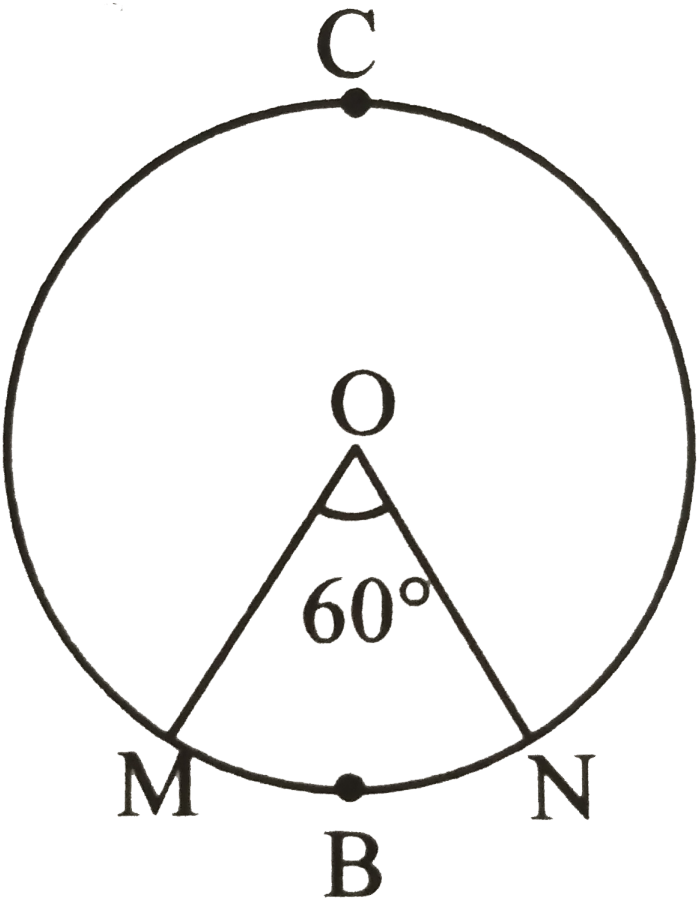
7. In the adjoninog figure , radius of the circle is 7 cm and m (arc MBN) = 60° find



A (O-MBN).

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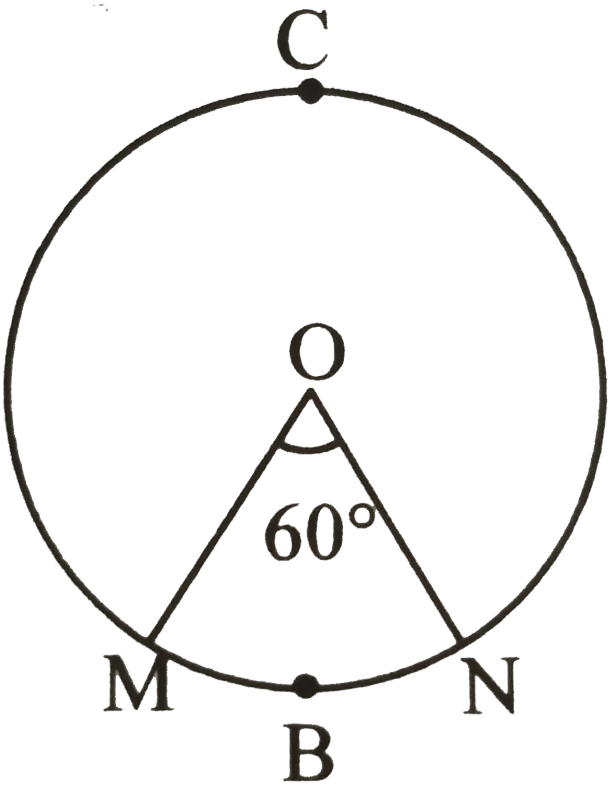
8. In the adjoninog figure , radius of the circle is 7 cm and m (arc MBN) = 60° find



A(O-MCN).

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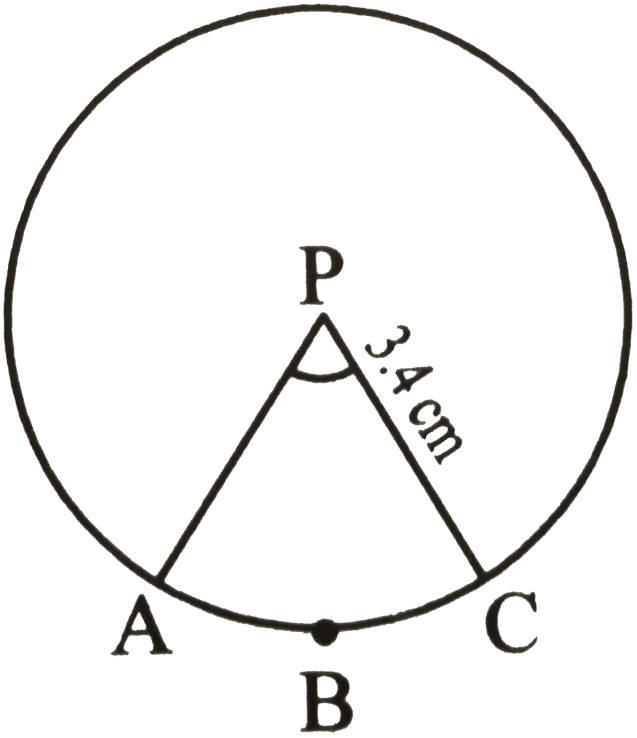
9. In the adjoining figure, radius of circle is 3.4 cm and perimeter of sector P-ABC is 12.8 cm. Find

A(P-ABC).



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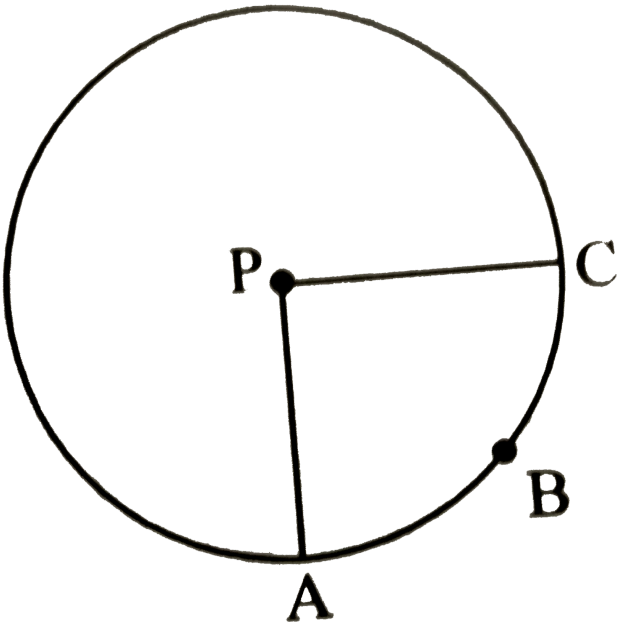
10. In the adjoining figure, if $A(P-ABC)=154cm^2$radius of the circle is 14 cm, find



$\angle APC,$

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11. Radius of a sector of a circle is 7 cm. If measure of arc of the sector is 30° find the area of the sector

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12. Radius of a sector of a circle is 7 cm. If measure of arc of the sector is (1) 30° (2) 210° (3) three right angles, find the area of the sector in each case

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13. Radius of a sector of a circle is 7 cm. If measure of arc of the sector is three right angles, find the area of the sector in each case.

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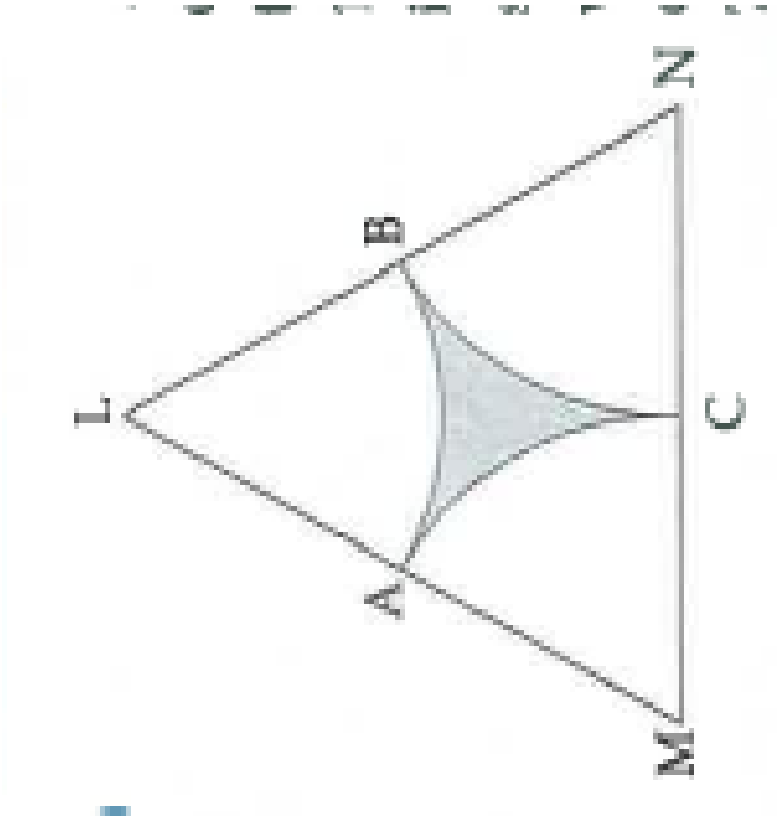
14. $\triangle LMN$ is an equilateral triangle. LM= 14 cm. As shown in the figure, 3 sectors are drawn with vertices as centre and radius 7 cm. Find (i)

A ($\triangle LMN$)



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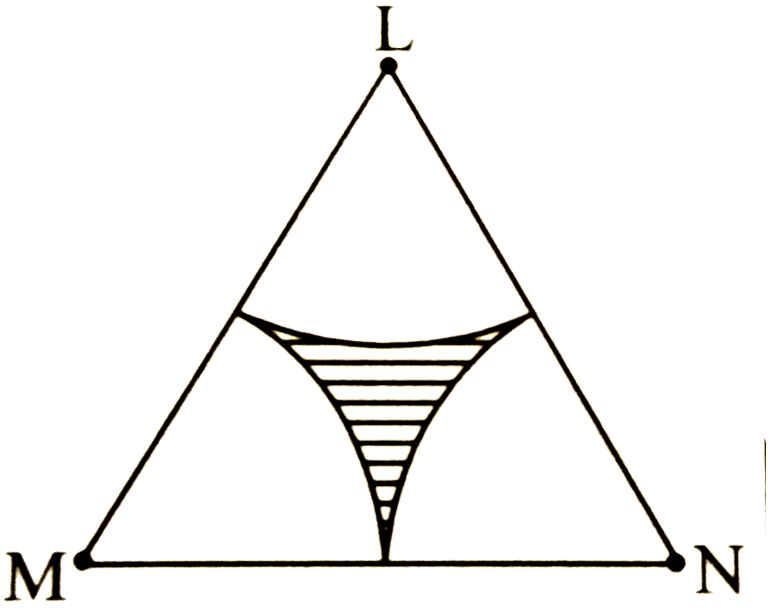
15. ΔLMN is an equilateral triangle. $LM = 14cm$. As shown in figure, three sectors are drawn with vertices as centres and radius 7 cm. Find,



Area of any one of the sectors.

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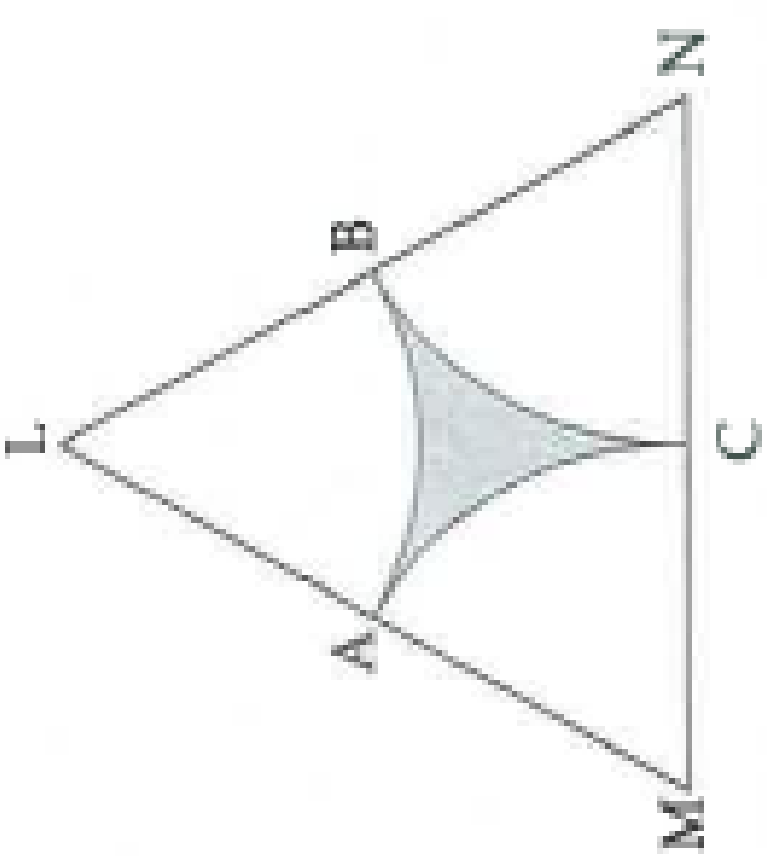
16. $\triangle LMN$ is an equilateral triangle. LM= 14 cm. As shown in the figure, three sectors are drawn with vertices as centre and radius 7 cm.

Find (iv) Area of the shaded region.



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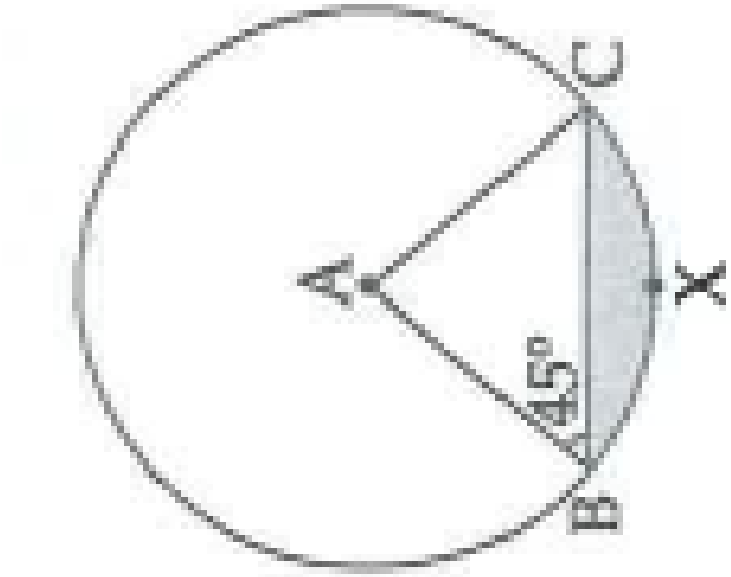
Practice Set 7 4

1. In the adjoining figure, A is the centre of the circle. $\angle ABC = 45^\circ$ and AC = $7\sqrt{2}$ cm. Find the area of segment BXC. $(\pi = 3.14), (\sqrt{2} = 1.41)$



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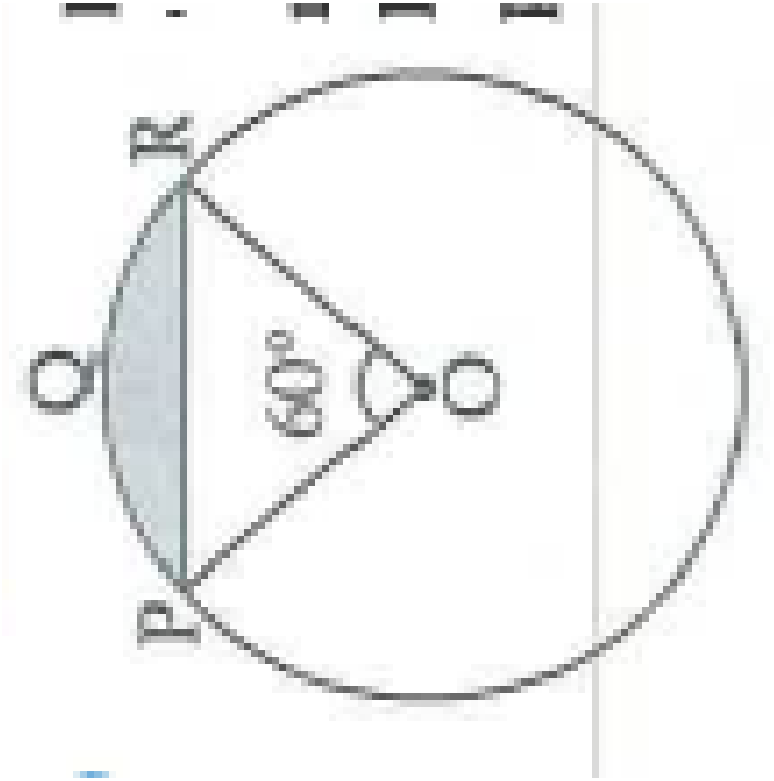
2. In the adjoining figure, point 'O' is the centre of the circle, m (arc PQR) = 60°, OP = 10 cm. Find the area of the shaded portion. $(\pi = 3.14, \sqrt{3} = 1.73)$



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Problem Set 7

1. The ratio of circumference and area of a circle is $2:7$. Find its circumference.

A. 14π

B. $\dfrac{7}{\pi}$

C. 7π

D. $\dfrac{14}{\pi}$

Answer: A

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2. If measure of an arc of circle is 160° and its length is 44 cm, find the circumference of the circle. (A) 66cm (B) 44cm (C) 160cm (D) 99cm

A. 66 cm

B. 44 cm

C. 160 cm

D. 99 cm

Answer: D

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3. Find the perimeter of a sector of a circle if its measure is 90° and radius is $7cm$. a)$44cm$ b)$25cm$ c)$36cm$ d)$56cm$

A. 44 cm

B. 25 cm

C. 36 cm

D. 56 cm

Answer: B

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4. Find the curved surface area of a cone of radius 7 cm and height 24 cm.

A. 440 cm^2

B. 550 cm^2

C. 330 CM^2

D. 110 cm^2

Answer: B

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5. The curved surface area of a cylinder is 440 cm^2 and its radius is 5 cm. Find its height.

A. $\frac{44}{\pi}$ cm

B. $22\pi cm$

C. $44\pi cm$

D. $\frac{22}{\pi} cm$

Answer: A

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6. A cone was melted and cast into a cylinder of the same radius as that of the base of the cone. If the height of the cylinder is 5cm, find the height of the cone.

A. 15 cm

B. 10 cm

C. 18 cm

D. 5 cm

Answer: A

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7. Find the volume of a cube of side 0.01 cm.

A. $1cm^3$

B. $0.001cm^3$

C. $0.0001cm^3$

D. $0.000001cm^3$

Answer: D

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8. Find the side of a cube of volume 1 m^3.

A. 1 cm

B. 10 cm

C. 100 cm

D. 1000 cm

Answer: C

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9. A washing tub in the shape of a frustum of a cone has height 21 cm. The radii of the circular top and bottom are 20 cm and 15 cm respectively. What is the capacity of the tub? $\left(\pi = \frac{22}{7}\right)$

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10. Some plastic balls of radius 1 cm were melted and cast into a tube. The thickness, length and outer radius of the tube were 2 cm,

90 cm, and 30 cm respectively. How many balls were melted to make the tube?

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11. A metal parallelopiped of measure 16 cm $\times$ 11 cm $\times$ 10 cm was melted to make coins. How many coins were made if the thickness and diameter of each coin was 2 mm and 2 cm respectively?

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12. The diameter and length of a roller is 120 cm and 84 cm respectively. To level the ground, 200 rotations of the roller are required. Find the expenditure to level the ground at the rate of ~ 10 per sq. m.

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13. The diameter and thickness of a hollow metallic sphere are 12 cm and 0.01 m respectively. The density of the metal is 8.88

gm per cm^3. Find the outer surface area and mass of the sphere.

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14. A cylinder bucket of diameter 28 cm and height 20 cm was full of sand. When the sand in the bucket was poured on the ground, the sand got converted into a shape of a cone. If the height of the cone was 14 cm, what was the base area of the cone?

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15. The radius of a metallic sphere is 9 cm. It was melted to make a wire of diameter 4 mm. Find the length of the wire.

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16. 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.

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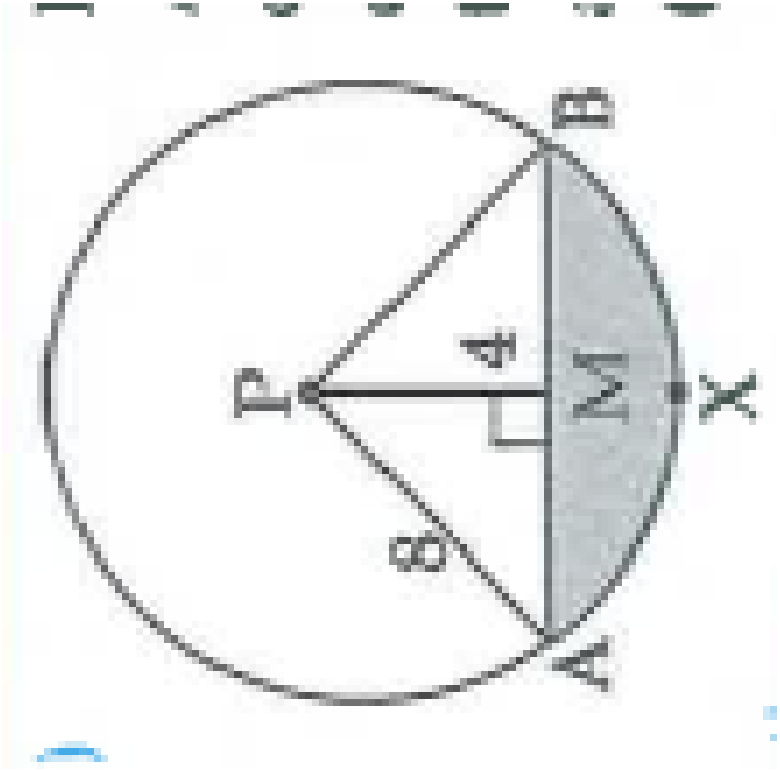
17. In the adjoining figure, seg AB is a chord of a circle with centre P. If PA = 8 cm and distance of chord AB from the centre P is 4 cm, find the area of the shaded portion.

$(\pi = 3.14. \sqrt{3} = 1.73)$



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Activities For Practice

1. Q.4. Attempt any two of the following: (1) A regular hexagon is inscribed in a circle of radius 14 cm. Find the area of the region between the circle and the hexagon.

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Multiple Choice Questions

1. The diameter of a cone whoes slant height is 35 cm and curved surface area is 1320 cm^2 is

A. 12 cm

B. 13 cm

C. 17 cm

D. 24 cm

Answer: B

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2. If the radius and height of the cone area 5 cm and 12 cm respectively, the its slant height is

A. 7 cm

B. 13 cm

C. 17 cm

D. 24 cm

Answer: B

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3. If the volume and height of a cone are 3600 cm^3 and 45 cm respectively, then the area of its base is

A. 80 cm^2

B. 160 cm^2

C. 240 cm^2

D. 720 cm^2

Answer: C

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4. If the ratio of the radii of a sphhere and a hemisphere is $3:5$ then the ratio of its curved surface area is

A. $3:5$

B. $9:25$

C. $18:25$

D. $9:50$

Answer: C

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5. If capactiy of a water reservoir is $92.43m^3$ then it can hold _____ litres of water.

A. 92430000

B. 9243

C. 92430

D. 924300

Answer: C

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6. During conversion of a solid from one shape to another, the volume the new shape will

A. decrease

B. increase

C. ramain same

D. be doubled

Answer: C

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7. A solid right circular cylinder of diameter 12 cm and height 27 cm is moulded into a sphere. The radius of the sphere is

A. 9 cm

B. 27 cm

C. 3 cm

D. 8 cm

Answer: A

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8. The radii of the top and bottom of a bucket of slant height 10 cm are 14 cm and 6 cm

respectively. The curved surface area of the bucket is $(\pi = 3.14)$

A. 628 cm^2

B. 629 cm^2

C. 630 cm^2

D. 631 cm^2

Answer: A

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9. If θ is the angle (in degrees) of a sector of a circle of radius r, then area of sector is

A. $\frac{\theta}{360} \times \pi r^2$

B. $\frac{\theta}{180} \times \pi r^2$

C. $\frac{\theta}{360} \times 2\pi r$

D. $\frac{\theta}{180} \times 2\pi r$

Answer: A

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10. If the area of a circle is 200 cm^2 and that of the minor sector is 50cm^2 , then the area of the corresponding major sector is

A. 50cm^2

B. $100cm^2$

C. $150cm^2$

D. $250cm^2$

Answer: C

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11. The diameter of a circle is 28 cm. The length of the arc when the correspoinding central angle is 45° is

A. 11 cm

B. 22 cm

C. 44 cm

D. 88 cm

Answer: A

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12. The area of sector whose radius and length of arc are 3 cm and 16 cm respectively is

A. $12cm^2$

B. $24cm^2$

C. $48cm^2$

D. $18cm^2$

Answer: B

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13. If the area of sector and length of the arc of the sector are $54cm^2$ and 18 cm respectively, then the radius of the circle is

A. 3 cm

B. 6 cm

C. 9 cm

D. 36 cm

Answer: B

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Additional Problems For Practice Based On Practice Set 7 1

1. The total surface area of a right circular cone of slant height 13 cm is $90\pi cm^2$, find its radius and volume.

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2. The volume of a sphere is $36\pi cm^3$. Find the surface area of the sphere.

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3. A roller of diameter 0.9 m and length 1.8 m is used to press the ground. Find the area of ground pressed by it in 500 revlutions. $(\pi = 3.14)$

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4. The dimensions of a metallic cuboid are 44 cm $\times$ 42 cm $\times$ 21cm. It is molten and

reacast into a sphere. Find the surface area of the sphere.

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5. A solid metallic cone of radius 2 cm and height 8 cm is melted into a sphere. Find the radius of sphere.

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6. The diameter of iron sphere is 6 cm. It is melted and drawn into a wire having diameter of the cross section as 0.2 cm. Find the length of the wire.

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7. How many lead balls, each of radius 1 cm, can be made from a sphere of radius 8 cm ?

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8. How many solid cylinders of radius 10 cm and height 6 cm can be made by melting a soilid sphere of radius 30 cm?

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9. A solid metallic sphere of diameter 16 cm is melted and recast into a number of smaller cones each of radius 4 cm and height 8 cm. Find the number of cones so formed.

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Additional Problems For Practice Based On Practice Set 7 2

1. A glass in the form of a cone has radii 8 cm 6 cm and slant height 30 cm. Find the curved surface area of glass.

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2. A bucket is in the form of a frustum of a cone and holds 28.490 litres of water. The

radii of the top and bottom are are 28 and 21 cm respectively. Find the height of the bucket.

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Additional Problems For Practice Based On Practice Set 7 3

1. If the sector of a circle with radius 10 cm has central angle 18°, find the area of the sector. $(\pi = 3.14)$

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2. A sector of a circle with radius 10 cm has central angle 72°. Find the area of the sector $(\pi = 3.14)$

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3. Find the area of sector whose central angle and radius area 60° and 21 cm respectively. $\left(\pi = \frac{22}{7}\right)$

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4. The diameter of a circle is 10 cm. Find the length of the arc, when the corresponding Central angle is as given below. $(\pi = 3.14)$ (i) 45° (ii)180°

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5. A sector is cut off from a circle of radius 21 cm. The angle of the sector is 120°. Find the length of its arc and the area.

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6. Find the area of the sector of a circle of radius 8 cm and arc with length 15 cm.

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7. Find the area of sector whose arc length and radius are 16 cm and 5 cm respectively.

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8. Find the area of the sector whose arc length and radius are 10 cm and 5 cm respectively.

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Chapter Assessment

1. The perimeter of a sector having central angle of measure 270° and radius 14 cm is

A. 66 cm

B. 94 cm

C. 462 cm

D. 490 cm

Answer: B

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2. The areas of two circles are in the ratio 9:4, then what is the ratio their circumference?

A. 9π

B. $\frac{9}{\pi}$

C. 4.5π

D. $\frac{3}{2}$

Answer: 3/2

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3. The curved surface area of the cone of radius 5 cm and height 12 cm is

A. $60\pi cm^2$

B. $65\pi cm^2$

C. $300\pi cm^2$

D. $325\pi cm^2$

Answer: B

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4. The side of a cube having volume 27 cm^3 is

A. 0.3 mm

B. 3 mm

C. 30 mm

D. 300 mm

Answer: C

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5. The radii of the circular faces of the frustum are 20 cm and 12 cm respectively . If the height of the frustum is 15 cm , then find its slant height.

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6. The measure of central angle of a circle is 60° and the radius of circle is 21 cm. Find the area of the sector associated withh the central angle.

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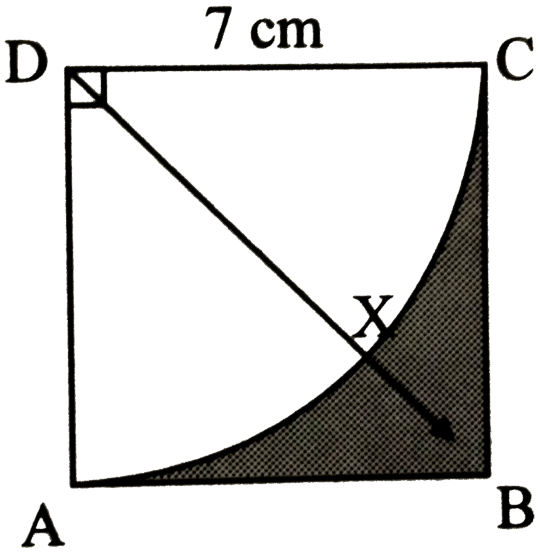
7. In the given figure side of square ABCD is 7 cm.

With centre D and radius DA, sector D-AXC is

drawn. Fill in the following boxes properly and find out the area of the shaded region.



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8. Find the curved surface area of a frustum if the radii of the circular faces are 15 cm and 5 cm, and its slant height is 26 cm.

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9. Find the area of sector whose arc length and radius are 20 cm and 8 cm respectively.

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10. A cylinder of radius 12 cm contains water upto the height of 20 cm. A spherical iron ball is dropped into the cylinder and thus water level is raised by 6.75 cm. What is the radius of the ball ?

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