Radians, Arc length, Area

1)

4. The following diagram shows a circle of centre O , and radius 15 cm. The arc ACB subtends an angle of 2 radians at the centre O .

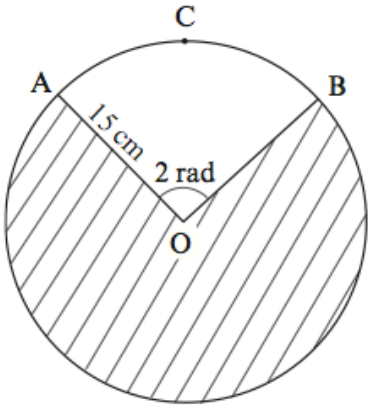


Diagram not to scale

$A\hat{O}B = 2$ radians.
OA = 15 cm.

Find

(a) the length of the arc ACB ;

(b) the area of the shaded region.

Working:

Answers:

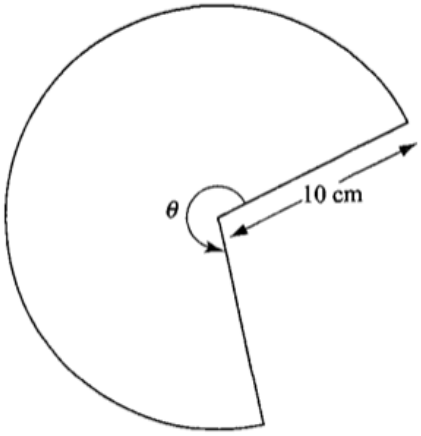
(a) _____

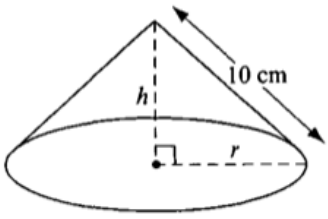
(b) _____

M02/520/S(1)

2)

20. The diagrams show a circular sector of radius 10 cm and angle θ radians which is formed into a cone of slant height 10 cm. The vertical height h of the cone is equal to the radius r of its base. Find the angle θ radians.





Working:

Answer:

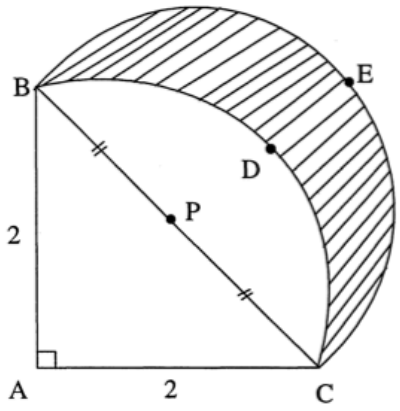
3)

14. The diagram below shows a triangle and two arcs of circles.

The triangle ABC is a right-angled isosceles triangle, with $AB = AC = 2$. The point P is the midpoint of [BC].

The arc BDC is part of a circle with centre A.

The arc BEC is part of a circle with centre P.



(a) Calculate the area of the segment BDCP.

(b) Calculate the area of the shaded region BECD.

Working:

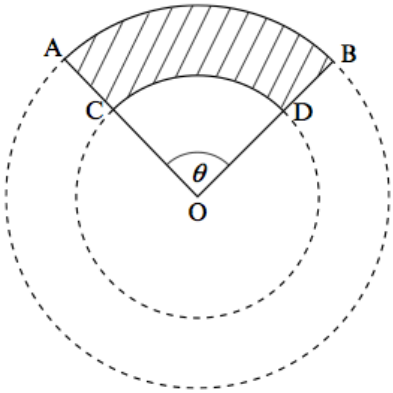
Answers:

(a) _____

(b) _____

4)

2. The diagram below shows two circles which have the same centre O and radii 16 cm and 10 cm respectively. The two arcs AB and CD have the same sector angle $\theta = 1.5$ radians.

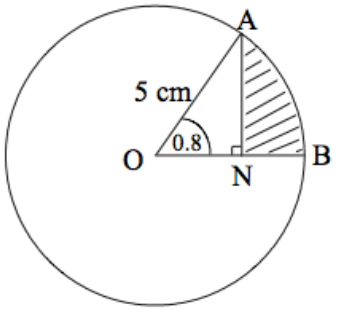


Find the area of the shaded region.

Working:

Answer:

5) **14.** The diagram below shows a circle of radius 5 cm with centre O. Points A and B are on the circle, and $A\hat{O}B$ is 0.8 radians. The point N is on [OB] such that [AN] is perpendicular to [OB].



Find the area of the shaded region.

Working:

Answer: