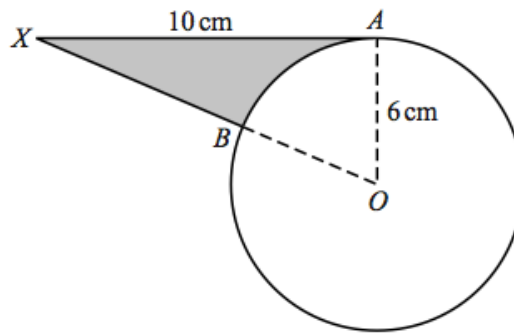


Circular Measures 2 (Radians)

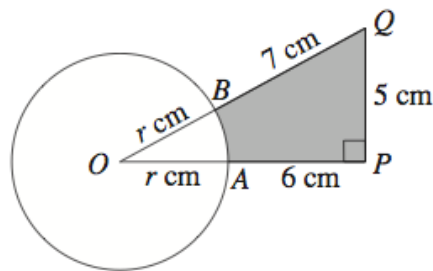
1)



The diagram shows a circle, centre O and radius 6 cm. The tangent from X touches the circle at A and $XA = 10$ cm. The line from X to O cuts the circle at B .

- (i) Show that angle AOB is approximately 1.03 radians. [1]
- (ii) Find the perimeter of the shaded region. [3]
- (iii) Find the area of the shaded region. [3]

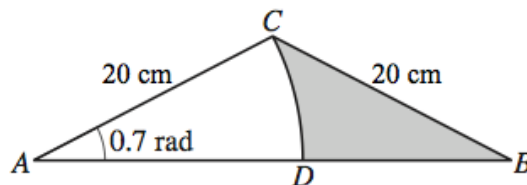
2)



The diagram shows a right-angled triangle OPQ and a circle, centre O and radius r cm, which cuts OP and OQ at A and B respectively. Given that $AP = 6$ cm, $PQ = 5$ cm, $QB = 7$ cm and angle $OPQ = 90^\circ$, find

- (i) the length of the arc AB , [6]
- (ii) the area of the shaded region. [4]

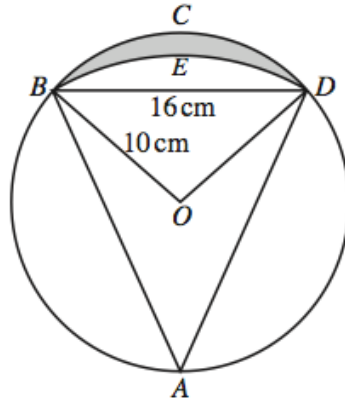
3)



The diagram shows an isosceles triangle ABC in which $BC = AC = 20$ cm, and angle $BAC = 0.7$ radians. DC is an arc of a circle, centre A . Find, correct to 1 decimal place,

- (i) the area of the shaded region, [4]
- (ii) the perimeter of the shaded region. [4]

4)



The diagram, which is not drawn to scale, shows a circle $ABCD$, centre O and radius 10 cm. The chord BD is 16 cm long. BED is an arc of a circle, centre A .

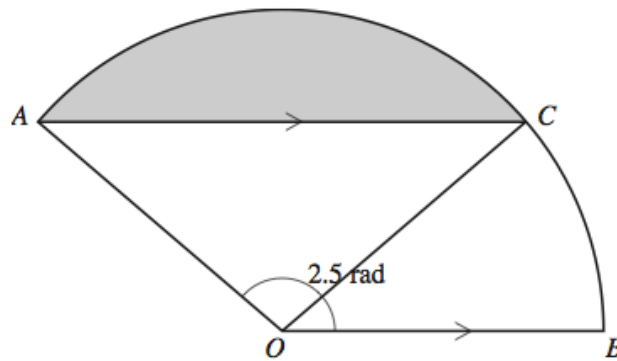
(i) Show that the length of AB is approximately 17.9 cm.

For the shaded region enclosed by the arcs BCD and BED , find

(ii) its perimeter, (iii) its area.

[11]

5)



The diagram shows a sector $OACB$ of a circle, centre O , in which angle $AOB = 2.5$ radians. The line AC is parallel to OB .

(i) Show that angle $AOC = (5 - \pi)$ radians. [3]

Given that the radius of the circle is 12 cm, find

(ii) the area of the shaded region, [3]

(iii) the perimeter of the shaded region. [3]