C2 TRIGONOMETRY *Worksheet B*

1 Convert each angle from degrees to radians, giving your answers in terms of π.

a 180° **b** 30° **c** 45° **d** 720° **e** 18° **f** 120°

g 15° **h** 40° **i** 270° **j** 7.5° **k** 144° **l** 220°

2 Convert each angle from degrees to radians, giving your answers to 2 decimal places.

a 10° **b** 38° **c** 291° **d** 63.8° **e** 507° **f** 126.2°

3 Convert each angle from radians to degrees.

a 2π **b** $\frac{\pi}{3}$ **c** $\frac{\pi}{2}$ **d** $\frac{3\pi}{4}$ **e** $\frac{\pi}{18}$ **f** $\frac{\pi}{30}$

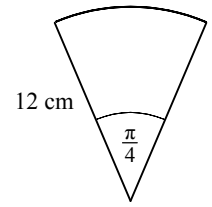
g $\frac{5\pi}{6}$ **h** $\frac{\pi}{8}$ **i** 3π **j** $\frac{2\pi}{15}$ **k** $\frac{7\pi}{3}$ **l** $\frac{9\pi}{20}$

4 Convert each angle from radians to degrees, giving your answers to 1 decimal place.

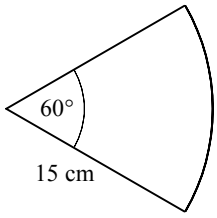
a 2^c **b** 0.5^c **c** 3.1^c **d** 1.43^c **e** 8.7^c **f** 0.742^c

5 Find, in terms of π, the length of the arc in each of the following circular sectors.

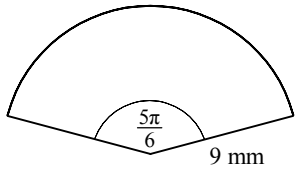
a



b

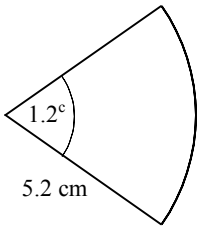


c



6 Find, to 3 significant figures, the perimeter of each of the following circular sectors.

a



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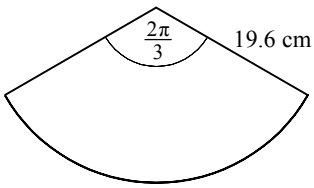

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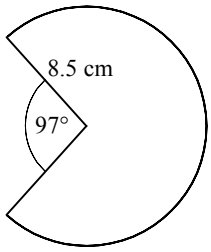
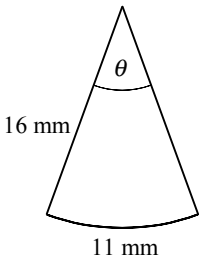


7 Find, in radians to 2 decimal places, the angle θ in each of the following circular sectors.

a



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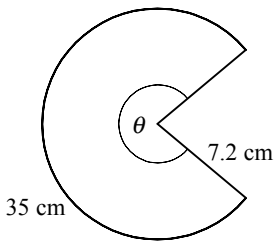

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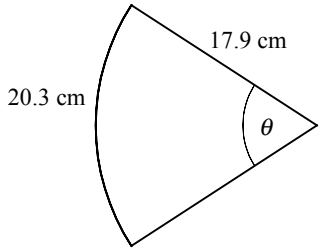


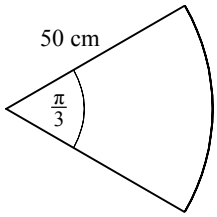
8 The minor arc AB of a circle, centre O, has length 46.2 cm.

Given that $\angle AOB = 78.5°$, find

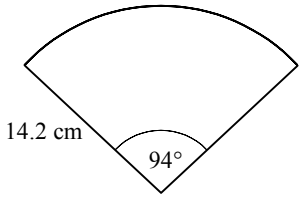
a the distance OA, **b** the perimeter of sector OAB.

9 Find, in cm^2 to 1 decimal place, the area of each of the following circular sectors.

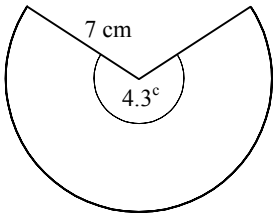
a



b



c



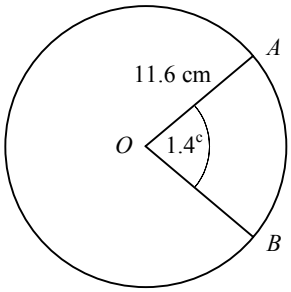
10 PQ is an arc of a circle of radius 8 cm, centre O.

Given that arc PQ has length 12 cm, find

a the angle, in radians, subtended by PQ at O,

b the area of sector OPQ.

11



The diagram shows a circle of radius 11.6 cm, centre O. The arc of the circle AB subtends an angle of 1.4 radians at O. Find, to 3 significant figures,

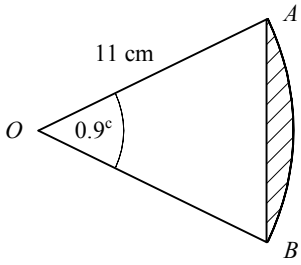
a the perimeter of the minor sector OAB,

b the perimeter of the major sector OAB,

c the area of the minor sector OAB,

d the area of the major sector OAB.

12



The diagram shows a circular sector OAB. Find the area of

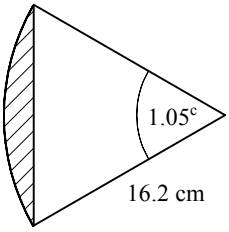
a the sector OAB,

b the triangle OAB**,**

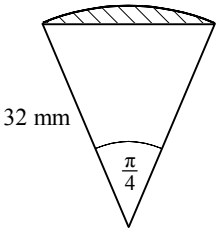
c the shaded segment.

13 Find the area of the shaded segment in each of the following circular sectors.

a



b



c