Radian Measure Worksheet – Part One Qs 1-8

"Warm Up"

1) (Try first without calculators.) Convert the following angles from radians into degrees:-

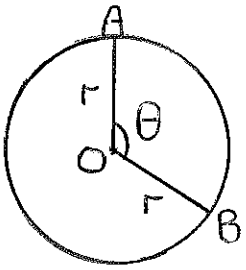
(a) 3π (b) $\frac{7\pi}{6}$ (c) $\frac{5\pi}{12}$

2) (Try first without calculators.) Convert the following angles from degrees into radians, giving answers as multiples or fractions of π:-

(a) $30°$ (b) $135°$ (c) $240°$ (d) $330°$

"Aerobics"

For Qs 3-6 below, refer to the circle shown to the right ➔



3) Find the arc length AB when:-

(a) r = 6 cm, $\theta = 0.45$ radians (b) r = 20 cm, $\theta = \frac{3\pi}{8}$ *(answer in terms of π)*

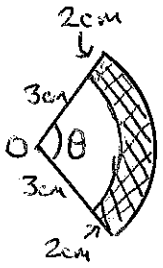
4) Find r when $\theta = \frac{5\pi}{12}$, and arc AB measures 1.5π cm

5) Find θ when r = $\sqrt{3}$ cm, and arc AB measures $\sqrt{12}$ cm

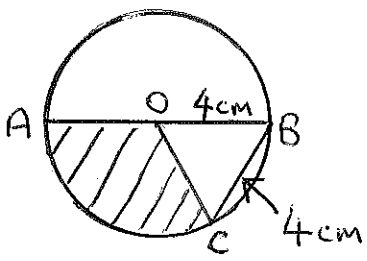
6) Find the area of the sector OAB when r = 8 cm, $\theta = 0.6$

"Assault Course – Challenge"

7) In the diagram on the right, find the value of θ when the perimeter of the shaded region is 14 cm



8) In the circle on the right, AOB is a diameter. The radius of the circle is 4 cm. What is the area of the shaded sector OAC?



Radian Measure Worksheet – Part Two Qs 9-12

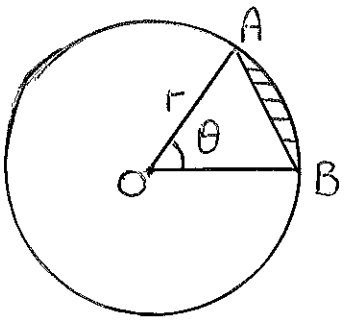
"Aerobics"

9) Referring to the circle on the right:-

(a) r = 12 cm, $\theta = 0.5$ What is the area of the sector OAB?

(b) Now consider the chord AB. This forms a triangle along with OA and OB. What is the area of this triangle OAB?

(c) What is the area of the shaded segment bounded by the chord AB and the arc AB?



10) Find the area of a segment of a circle of radius 6 cm which subtends an angle of $\frac{\pi}{5}$ radians at the centre.

11) A segment subtends an angle of $\frac{\pi}{7}$ radians at the centre of a circle. The segment has an area of 0.0148 cm^2. Find the radius of the circle.

"Assault Course – Challenge"

Before attempting this question, please ensure that you have completed all of the other questions on the worksheet and that they have been marked as correct.

12) A sector of a circle of radius 28cm has perimeter P cm and area A cm^2. Given that A = 4P, find the value of P.