Year 4 Math Assignment 1: Circular Measure **Time: 30 mins**

Q1 Convert the following angles to radians. Give your answers in terms of π.

(a) 150^o (b) 210^o (c) 255^o (d) 330^o

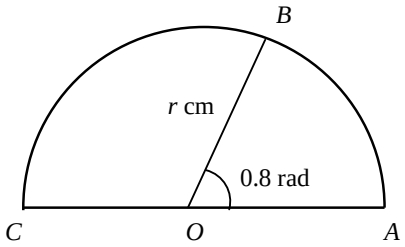
Q2 Convert the following angles to degrees.

(a) $\frac{\pi}{8}$ rad (b) $\frac{2\pi}{3}$ rad (c) 2.15 rad (d) 3.51 rad

Q3 The diagram shows a semicircle *OABC*. If the arc *AB* has length 6.4 cm, calculate

(a) the length of the radius

(b) the length of the arc BC.



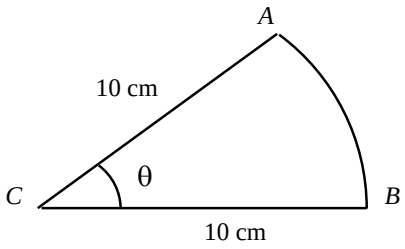
Q4 The diagram shows a sector *AOB* whose angle is θ radians. Find

(a) the value of θ if the arc *AB* has a length 14 cm,

(b) the length of the arc *AB* if θ =0.6,

(c) the area of the sector if the arc *AB* has length 5 cm

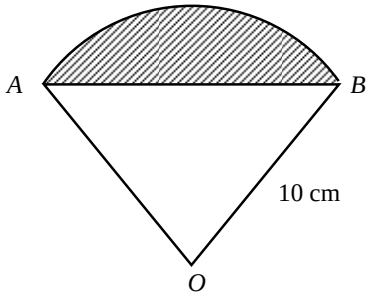
(d) the length of the arc *AB* if the area of the sector is 30 cm^2.



Q5 The diagram shows part of a circle, centre *O*, radius 10 cm. Given that the length of the arc *AB* is 14 cm, calculate,

(a) the angle *AOB* in radians.

(b) the area of the shaded region.



Q6 Suppose a new unit of measure of angles is called “Kradian”, which is defined by the angle subtended in a sector, by an arc length of one fifth a radius. How many “kradians” is 180°?

Q7 In the diagram, express the lengths *x*, *y* and *z* in terms of *r* and θ.

John declared: “Now that I have learnt the formulae for circular measure, I can use them to find the length of the chord AC and the area of segment ABC! Yay!” Do you agree with John? Why or why not?