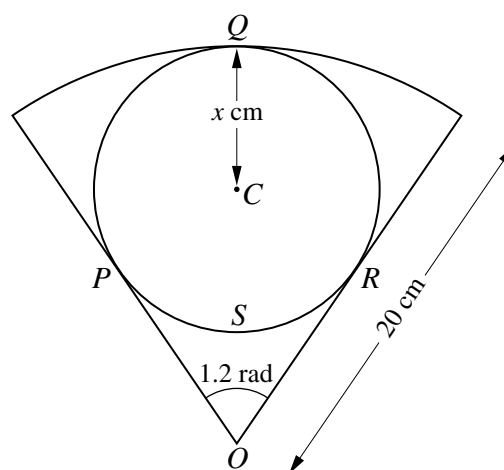


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The diagram shows a sector of a circle with centre O and radius 20 cm . A circle with centre C and radius $x\text{ cm}$ lies within the sector and touches it at P , Q and R . Angle $POR = 1.2$ radians.

- (i) Show that $x = 7.218$, correct to 3 decimal places. [4]
- (ii) Find the total area of the three parts of the sector lying outside the circle with centre C . [2]
- (iii) Find the perimeter of the region $OPSR$ bounded by the arc PSR and the lines OP and OR . [4]