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In the diagram, the circle has centre O and radius 5 cm. The points P and Q lie on the circle, and the arc length PQ is 9 cm. The tangents to the circle at P and Q meet at the point T. Calculate

  (i) angle POQ in radians,   [2]

 (ii) the length of PT,   [3]

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