



The diagram shows two circles, C_1 and C_2 , touching at the point T . Circle C_1 has centre P and radius 8 cm; circle C_2 has centre Q and radius 2 cm. Points R and S lie on C_1 and C_2 respectively, and RS is a tangent to both circles.

- (i) Show that $RS = 8$ cm. [2]
- (ii) Find angle RPQ in radians correct to 4 significant figures. [2]
- (iii) Find the area of the shaded region. [4]