7 The coordinates of the points P and Q are (1, 1) and (7, 11) respectively. The line segment PQ forms a diameter of a circle.

(a) Find the equation of the circle. [4]

(b) Find the equation of the tangent to the circle at the point Q. [3]

(c) The other point on the circle with x-coordinate 7 is R.

Find the coordinates of the point of intersection of the tangent at Q with the tangent at R. [4]