

Day 2 Question 1

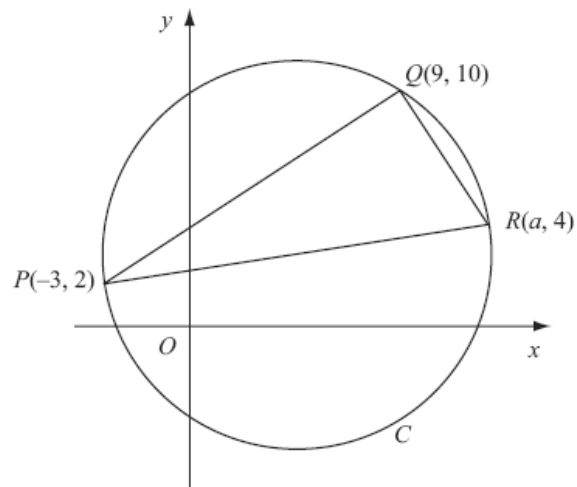


Figure 2

The points $P(-3, 2)$, $Q(9, 10)$ and $R(a, 4)$ lie on the circle C , as shown in Figure 2.

Given that PR is a diameter of C ,

(a) show that $a = 13$, (3)

(b) find an equation for C . (5)

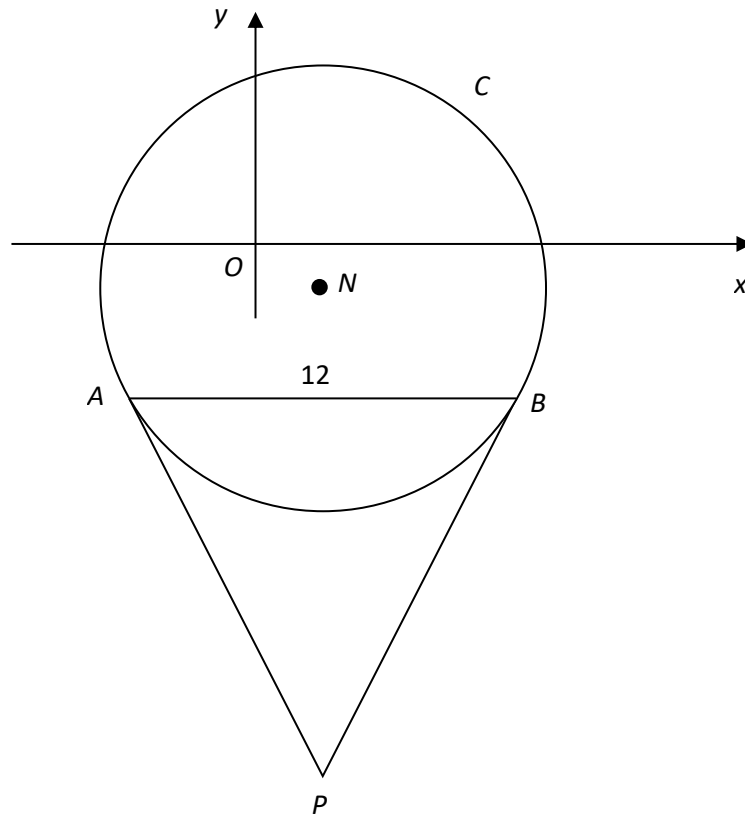


Figure 3

Figure 3 shows a sketch of the circle C with centre N and equation

$$(x - 2)^2 + (y + 1)^2 = \frac{169}{4}.$$

(a) Write down the coordinates of N .

(2)

(b) Find the radius of C .

(1)

The chord AB of C is parallel to the x -axis, lies below the x -axis and is of length 12 units as shown in Figure 3.

(c) Find the coordinates of A and the coordinates of B .

(5)

(d) Show that angle $ANB = 134.8^\circ$, to the nearest 0.1 of a degree.

(2)

The tangents to C at the points A and B meet at the point P .

(e) Find the length AP , giving your answer to 3 significant figures.

(2)
