

The equation of a circle

A LEVEL LINKS

Scheme of work: 2a. Straight-line graphs, parallel/perpendicular, length and area problems

Practice question

1

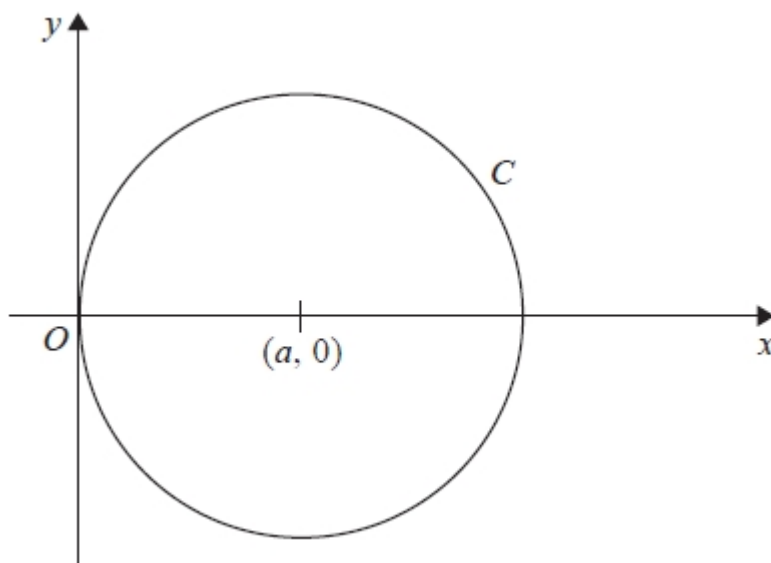


Figure 3

Figure 3 shows a circle C

C touches the y -axis and has centre at the point $(a, 0)$ where a is a positive constant.

(a) Write down an equation for C in terms of a

Given that the point $P(4, -3)$ lies on C ,

(b) find the value of a

Answers

- 1 a Writes C as $(x-a)^2 + (y-0)^2 = a^2$
- b Subs $(4, -3) \Rightarrow (4-a)^2 + (-3-0)^2 = a^2$
 $\Rightarrow 16 - 8a + a^2 + 9 = a^2$
 $\Rightarrow 25 = 8a$
 $\Rightarrow a = \frac{25}{8}$