



Equation of a Circle



REVISE THIS TOPIC



1 The equation of a circle is $x^2 + y^2 = 16$
Write down the radius of the circle. [1 mark]

Answer 4

2 The equation of a circle is $x^2 + y^2 = 100$
Write down the diameter of the circle. [1 mark]

Answer 20

3 The equation of a circle is $x^2 + y^2 = 400$
Write down the radius of the circle. [1 mark]

Answer 20

4 The equation of a circle is $x^2 + y^2 = 9$
Write down the diameter of the circle. [1 mark]

Answer 6

5 The equation of a circle is $x^2 + y^2 = 16^2$
Write down the radius of the circle. [1 mark]

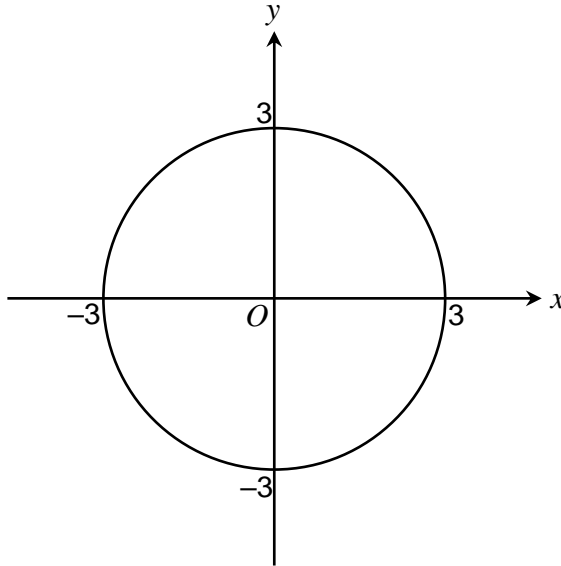
Answer 16



- 6 The equation of a circle is $x^2 + y^2 = 25$
Write down the coordinates of the centre of the circle. [1 mark]

Answer (0, 0)

- 7 A circle, centre O , passes through $(3, 0)$ [1 mark]



Write down the equation of the circle.

Answer $x^2 + y^2 = 9$

- 8 A circle has centre $(0, 0)$ and passes through $(9, 0)$
Write down the equation of the circle. [1 mark]

Answer $x^2 + y^2 = 81$





9 Match each equation of a circle on the left with its radius on the right. [2 marks]

| | | |
|---------------------------|--|---------------|
| | | $\frac{1}{4}$ |
| $x^2 + y^2 = \frac{1}{4}$ | | $\frac{1}{2}$ |
| $x^2 + y^2 = 4$ | | 2 |
| $x^2 + y^2 = 16$ | | 4 |
| $x^2 + y^2 = 64$ | | 8 |
| | | 16 |
| | | 32 |





10 A circle with centre (0, 0) has a diameter of 10.
Write down the equation of the circle. [1 mark]

Answer $x^2 + y^2 = 25$

11 A circle has centre (0, 0)
The line $y = -12$ is a tangent to the circle.
Write down the equation of the circle. [1 mark]

Answer $x^2 + y^2 = 144$

12 A circle with centre (0, 0) has a diameter of 3.
Write down the equation of the circle. [1 mark]

Answer $x^2 + y^2 = 2.25$

13 A circle with centre (0, 0) has a radius of $\sqrt{7}$.
Write down the equation of the circle. [1 mark]

Answer $x^2 + y^2 = 7$

14 The equation of a circle is $x^2 + y^2 = 9.82$
Write down the area of the circle in terms of π [1 mark]

Answer 9.82π units²





15 Tick the correct box for each statement below

[2 marks]

| | True | False |
|---|-------------------------------------|-------------------------------------|
| $x^2 = 30 - y^2$ is an equation of a circle. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| $\frac{x^2}{2} + \frac{y^2}{2} = 7$ is an equation of a circle. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| $x^2 - y^2 = 64$ is an equation of a circle. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| $x^2 + y^2 = \pi^2$ is an equation of a circle. | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

16 The equation of a circle is $x^2 + y^2 = 20$
Work out the radius of the circle.

Give your answer in the form $a\sqrt{b}$, where a and b are integers.

[2 marks]

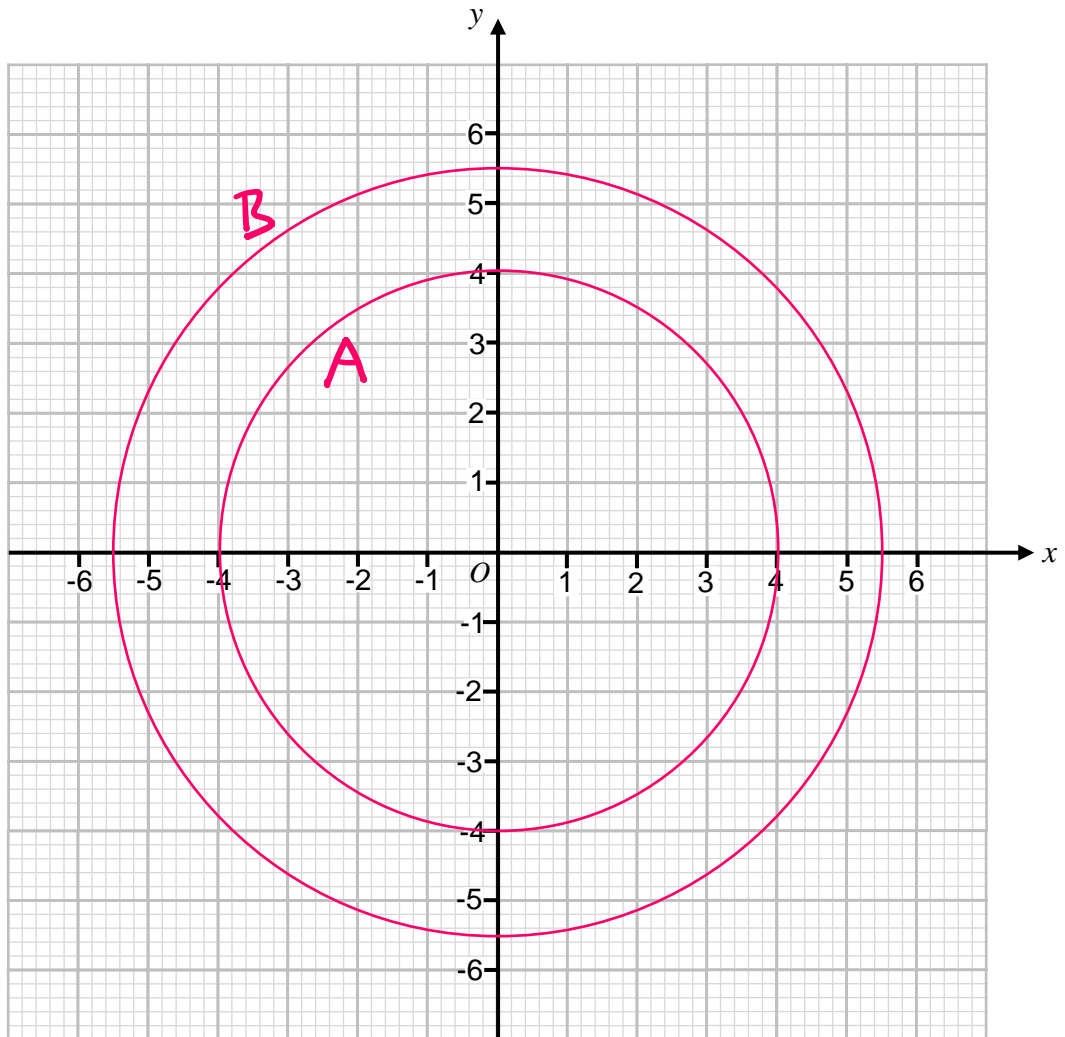
$$\begin{aligned}\sqrt{20} &= \sqrt{4} \times \sqrt{5} \\ &= 2\sqrt{5}\end{aligned}$$

Answer $2\sqrt{5}$





17

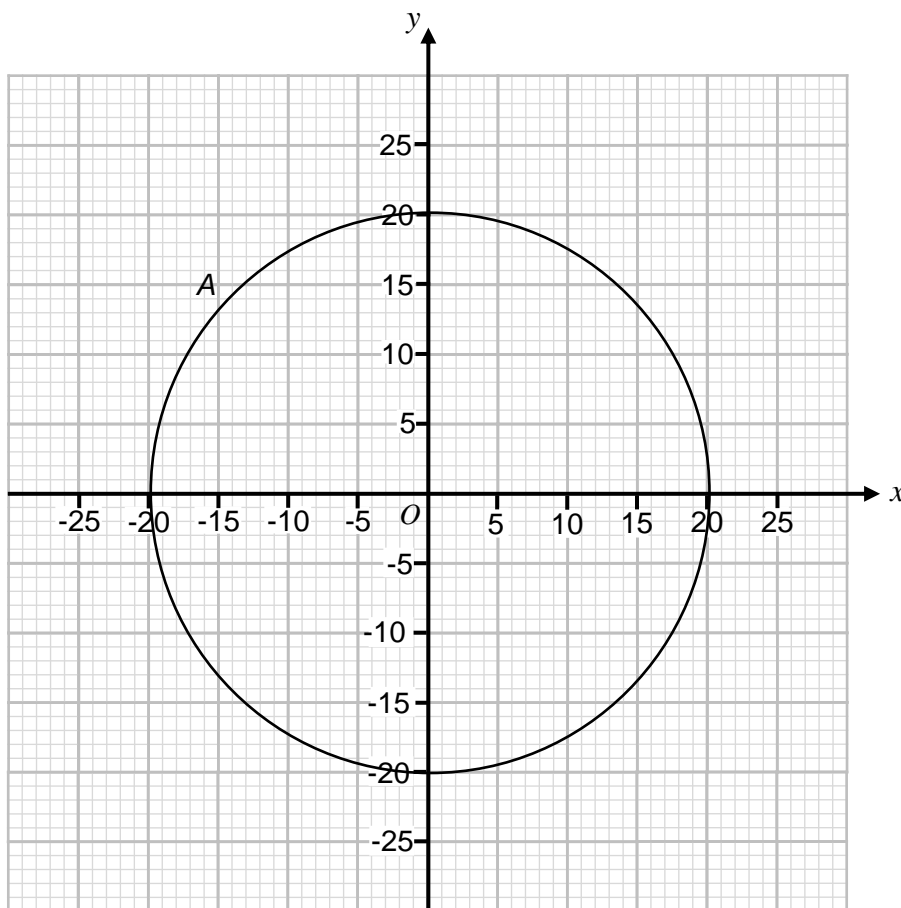


17 (a) On the grid above, draw the graph of $x^2 + y^2 = 16$ [2 marks]
Label the graph A.

17 (b) On the grid above, draw the graph of $x^2 + y^2 = 30\frac{1}{4}$ [2 marks]
Label the graph B.



18 The graph of circle A is shown on the grid below.



18 (a) Write down the equation of circle A [1 mark]

Answer $x^2 + y^2 = 400$

18 (b) Sammi draws another circle called circle B . [2 marks]

Area of circle $B = 50\%$ of the area of circle A .

Work out the equation of circle B .

$$400\pi \div 2 = 200\pi$$

Answer $x^2 + y^2 = 200$

