

EQUATION OF A CIRCLE – PRACTICE QUESTIONS



1.

A circle has equation $x^2 + y^2 = 25$.

(a) Write down the co-ordinates of the centre of the circle.

(b) Write down the radius of the circle.

2.

A circle has equation $x^2 + y^2 = 100$.

(a) Write down the co-ordinates of the centre of the circle.

(b) Write down the radius of the circle.

3.

A circle has equation $x^2 + y^2 = 49$.

(a) Write down the co-ordinates of the centre of the circle.

(b) Write down the diameter of the circle.

4.

A circle has centre $(0, 0)$ and radius 6.

Write down the equation of the circle.

5.

A circle has centre $(0, 0)$ and radius 11.

Write down the equation of the circle.

6.

A circle has centre $(0, 0)$ and diameter 16.

Write down the equation of the circle.

7.

A circle has equation $x^2 + y^2 = 100$.

Does the point (8, -6) lie on the circumference of the circle?

8.

A circle has equation $x^2 + y^2 = 25$.

Does the point (-3, -4) lie on the circumference of the circle?

9.

A circle has equation $x^2 + y^2 = 144$.

Does the point (9, 7) lie on the circumference of the circle?

10.

A circle has centre (0, 0) and radius 13.

Does the point (12, 5) lie on the circumference of the circle?

11.

A circle has centre (0, 0) and diameter 30.

Does the point (-9, 13) lie on the circumference of the circle?

12.

A circle has centre $(0, 0)$.

The point $(7, 2)$ lies on the circumference of the circle.

Write down the equation of the circle.

13.

A circle has centre $(0, 0)$.

The point $(-4, 6)$ lies on the circumference of the circle.

Write down the equation of the circle.

14.

A circle has centre $(0, 0)$.

The point $(-5, -5)$ lies on the circumference of the circle.

Write down the radius of the circle.

15.

A circle has centre $(0, 0)$.

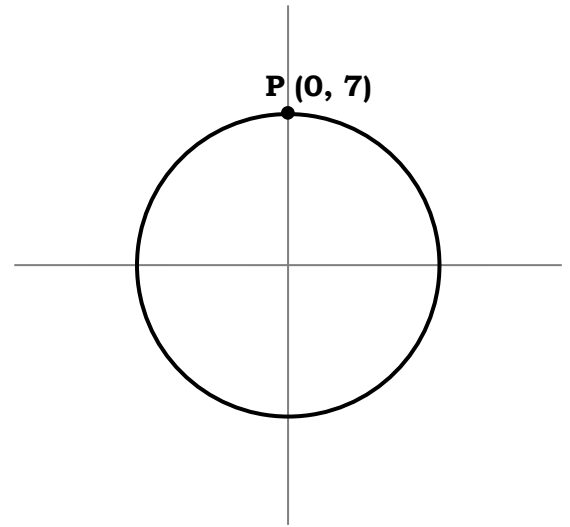
The point $(16, -12)$ lies on the circumference of the circle.

Write down the diameter of the circle.

16.

Pictured to the right is a circle with centre $(0, 0)$.
The circle passes through the point P.

Find the equation of the circle.

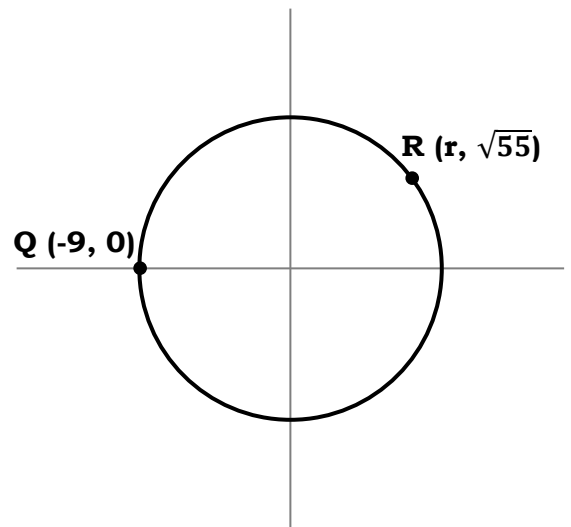


17.

Pictured to the right is a circle with centre $(0, 0)$.
The circle passes through the points Q and R.

(a) Find the equation of the circle.

(b) Find r .

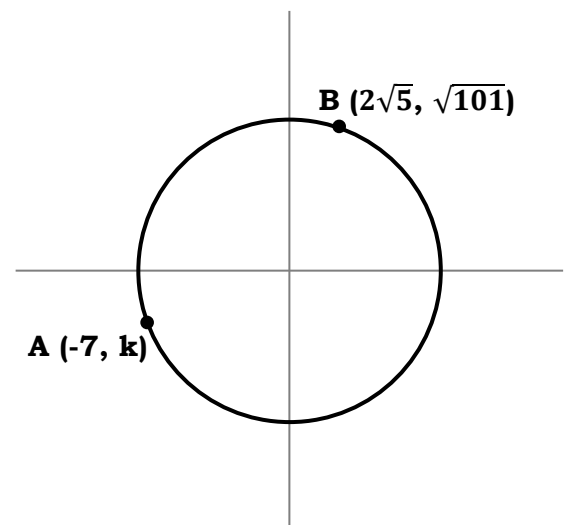


18.

Pictured to the right is a circle with centre $(0, 0)$.
The circle passes through the points A and B.

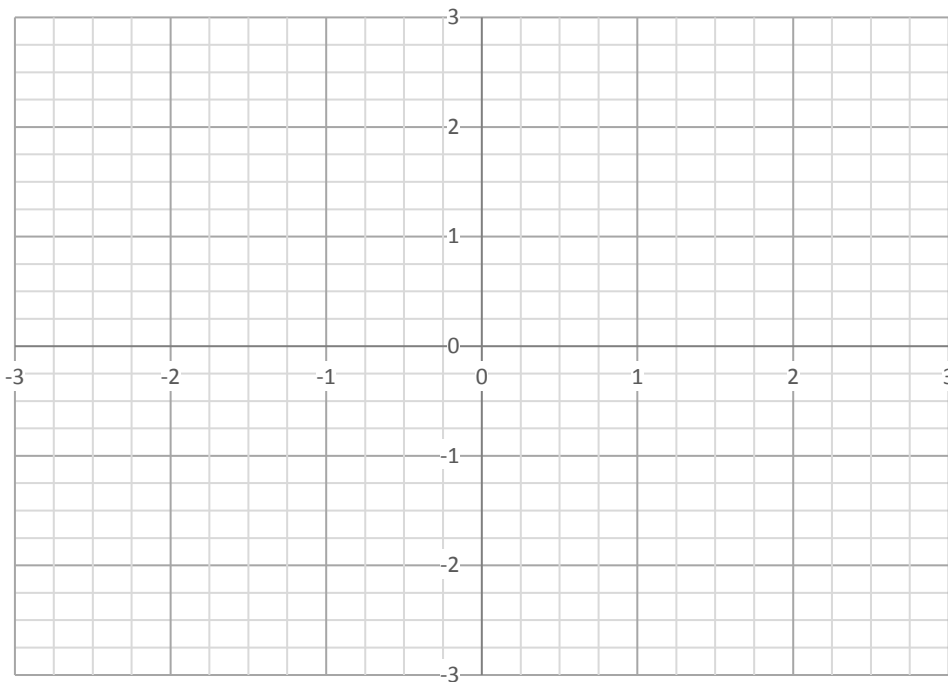
(a) Find the area of the circle, in terms of π .

(b) Find k . Give your answer in the form $a\sqrt{2}$
where a is an integer.



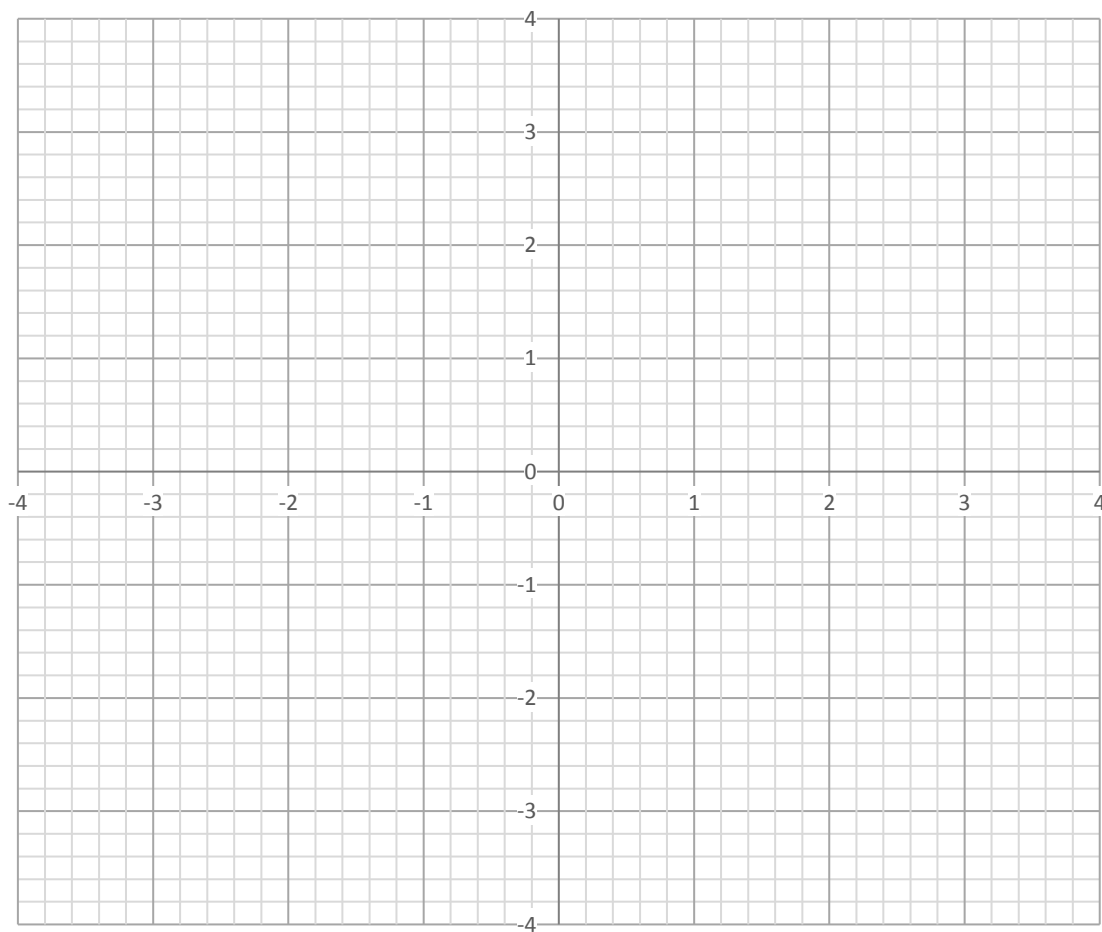
19.

On the axis below, plot the circle with equation $x^2 + y^2 = 6.25$.



20.

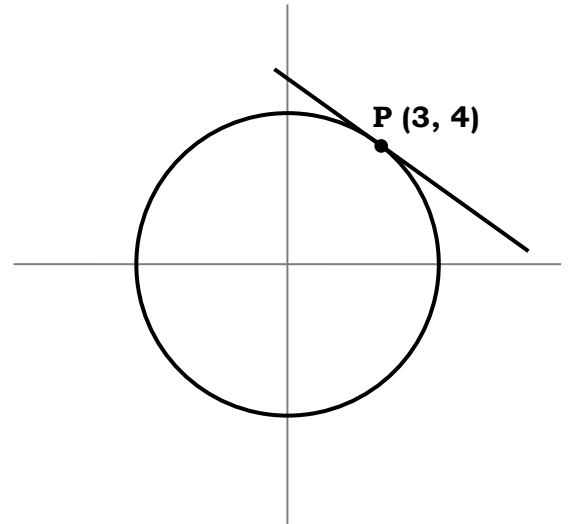
On the axis below, plot the graph $x^2 + y^2 = 10.24$.



21.

Pictured is a circle with centre $(0, 0)$ and a tangent to the circle at the point P.

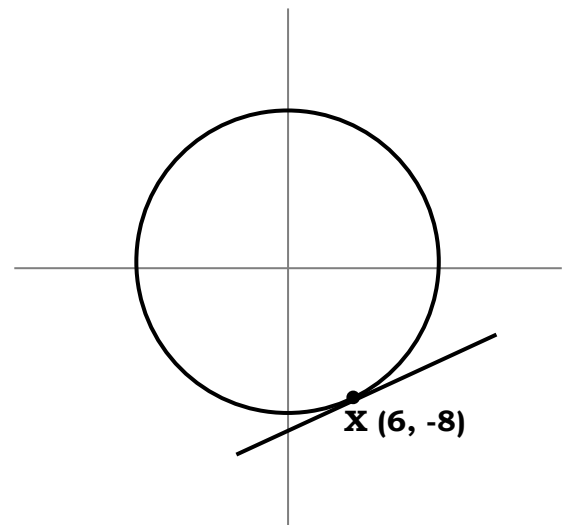
Find the equation of the tangent at P.



22.

Pictured is a circle with centre $(0, 0)$ and a tangent to the circle at the point X.

Find the equation of the tangent at X.



23.

A circle has equation $x^2 + y^2 = 169$.

Find the equation of the tangent to the circle at $(-5, 12)$.

24.

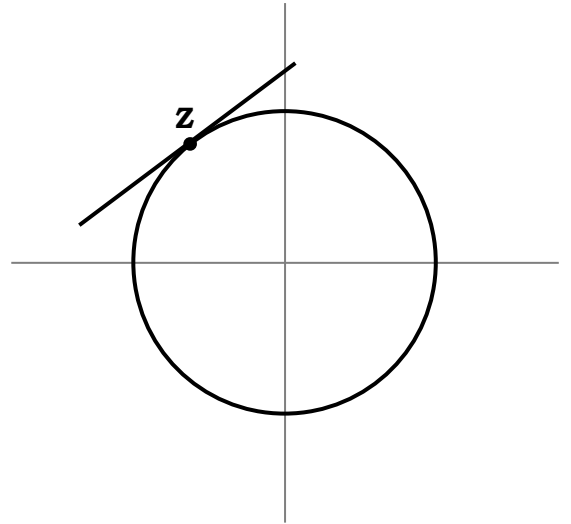
A circle has equation $x^2 + y^2 = 4$.

Y is a point on the circle with co-ordinates $\left(\frac{\sqrt{7}}{2}, \frac{3}{2}\right)$.

Find the equation of the tangent to the circle at Y.

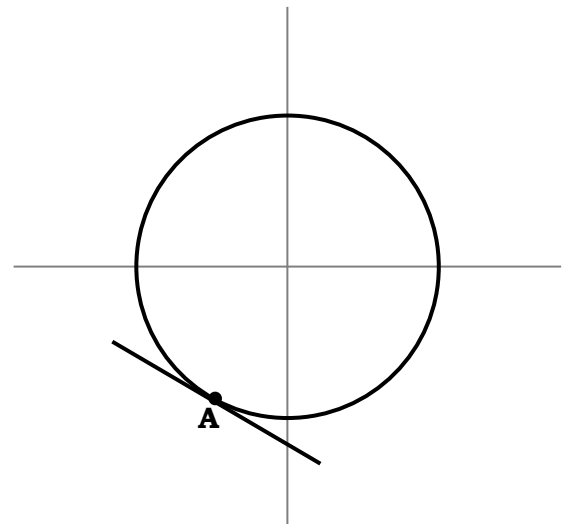
25.
Pictured is a circle with equation $x^2 + y^2 = 58$ and a tangent to the circle at the point Z. Z has x co-ordinate -7.

Find the equation of the tangent to the circle at Z.



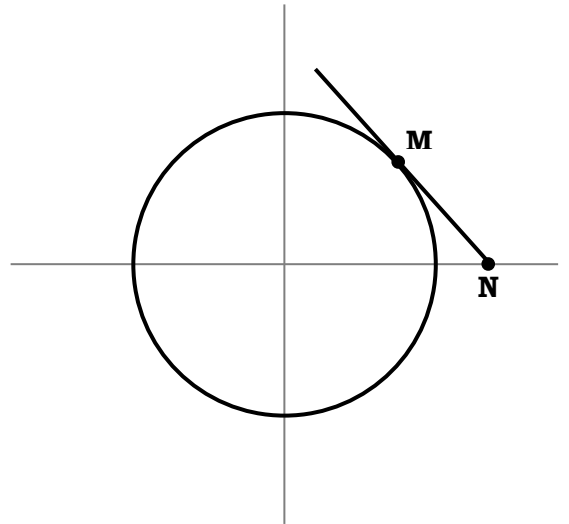
26.
Pictured is a circle with equation $x^2 + y^2 = 89$ and a tangent to the circle at the point A. A has y co-ordinate -8.

Find the equation of the tangent to the circle at A.



27.
Pictured is a circle with equation $x^2 + y^2 = 13$ and a tangent to the circle at the point M.
M has y co-ordinate 3.
The tangent at M intersects the x-axis at N.

Find the co-ordinates of N.



28.
The circle C has equation $x^2 + y^2 = 5$.
The line L has equation $y = 2x - 5$.

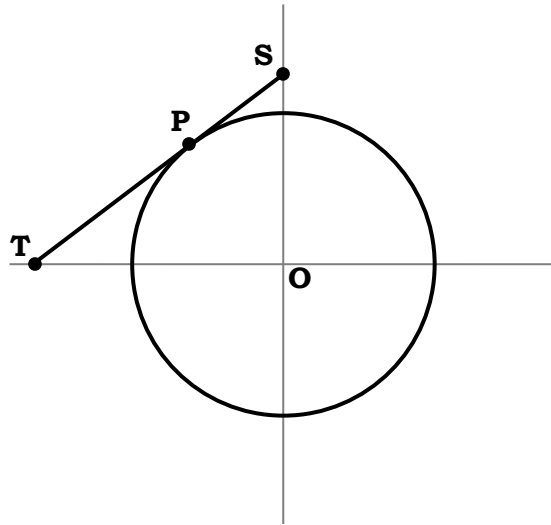
Prove algebraically that L is a tangent to C.

29.

Pictured is a circle with centre O and equation $x^2 + y^2 = 26$.

The line L is a tangent to the circle at point P with co-ordinates $(-1, 5)$.

L passes the y-axis at point S and the x-axis at point T.



Show that the area of the triangle TSO is 67.6