

1 Equation of a circle

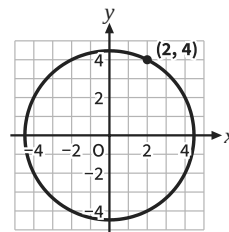


- a) A circle with centre $(0, 0)$ passes through $(2\sqrt{3}, -\sqrt{6})$. Find its equation.
- b) Find the exact circumference of the circle. Give your answer in terms of π .

2 Equation of a circle



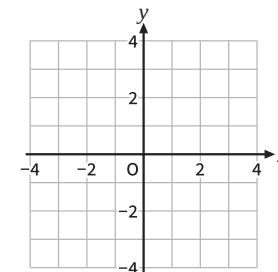
- The circle has centre $(0, 0)$.
- a) Write down the equation of the circle.
- b) The point $(k, k + 2)$ is inside the circle. Find the range of values of k .



3 Equation of a circle



- a) On the grid, draw $x^2 + y^2 = 9$ and $y = 2x + 1$.
- b) Find the exact x coordinates of the points where they meet.



4 Equation of a circle



- Shapes with sides parallel to the axes have their four corners on the circle $x^2 + y^2 = 50$.
- a) Find the area of the square.
- b) A rectangle is twice as long as it is wide. Find its exact length and width.

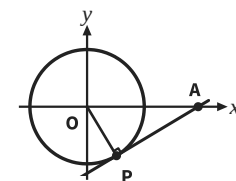
Equations of circles

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5 Equation of a tangent



- $P(3, -5)$ is on the circle $x^2 + y^2 = 34$.
- a) Find the equation of the tangent at P , in the form $ax + by = c$.
- b) The tangent meets the x axis at A . Find the exact length PA .



6 Equation of a tangent



- a) Show that the line $y = 2x - 5$ meets the circle $x^2 + y^2 = 5$ at only one point.
- b) Find the coordinates of that point.

7 Equation of a tangent



- The line $4x + 3y = 50$ is a tangent to a circle with centre $O(0, 0)$ at the point P .
- a) Find the coordinates of P .
- b) Find the equation of the circle.

8 Equation of a tangent



- The line $y = x + k$ is a tangent to the circle $x^2 + y^2 = 18$.
- a) Find the two possible values of k .
- b) Find the point of contact for each.