A - Level Maths Coordinate Geometry Recap

Straight Lines / Linear Functions The equation of a line with gradient *m* passing through the point (x_1, y_1) has equation The equation of a line passing through the points with coordinates (x_1, y_1) and (x_2, y_2) has equation Consider the line ax + by + c = 0x-intercept: y-intercept: Gradient: Consider two lines $l_1 : y = m_1 x + c_1$ and $l_2 : y = m_2 x + c_2$. Then l_1 and l_2 are parallel if: l_1 and l_2 are perpendicular if:



The midpoint of the line segment joining (x_1, y_1) to (x_2, y_2) is:

The distance between the point (x_1, y_1) and the point (x_2, y_2) is:

Example

Find the equation of the perpendicular bisector of the line segment AB where A(2, -4) and B(6, 4)





The tangent at (h, k) to the circle with equation $x^2 + y^2 = a^2$ has equation:

Example

Find the centre and radius of the circle $x^2 - 12x + y^2 + 6y - 4 = 0$

Example

Find the equation of the tangent to the circle $(x - 2)^2 + (y + 1)^2 = 25$ at the point (5,3).



Example

A circle passes through the points A(8,8), B(16, -4) and C(-2, -16). Find the equation of the circle given that the equation of the perpendicular bisector of BC is 3x + 2y = 1.



