Guide to:
Equation of a line

maths Links

Explanation:

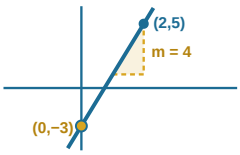
The equation of a straight line is written in the form **y = mx + c**, where **m** is the **gradient** and **c** is the **y-intercept** (the value of y where the line crosses the y-axis at **(0, c)**).

To find the equation of a line from two points, first calculate the gradient $\mathbf{m = \frac{y_2 - y_1}{x_2 - x_1}}$, then substitute **m** and the coordinates **(x, y)** of one point into **y = mx + c** to find **c**.

Example 1: Find the equation of the line with gradient **4** that passes through the point **(2, 5)**.

Solution:

Start with **y = 4x + c**
Sub (2, 5): **5 = 4(2) + c**
5 = 8 + c → **c = −3**
Answer: y = 4x − 3



Example 2: Find the equation of the line passing through **(−2, 7)** and **(4, −5)**.

Solution:

Gradient m = $\frac{-5 - 7}{4 - (-2)} = \frac{-12}{6} = \mathbf{-2}$
Substitute m = −2 and (4, −5) into y = mx + c:
−5 = −2(4) + c → −5 = −8 + c → **c = 3**
Answer: y = −2x + 3

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Corbettmaths (Practice)	Qs	Ans	**E Classroom**	Qs	Ans
Corbettmaths (Textbook)	Qs	Ans	**PMT (Edexcel)**	Qs	Ans
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