Guide to:
Parallel and perpendicular

maths Links

Explanation:

Always rearrange any straight-line equation into the form **$y = mx + c$** first so you can read its gradient **m**. **Parallel lines** have the **exact same gradient** ($m_1 = m_2$).

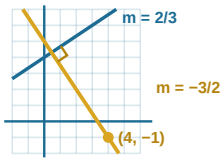
Perpendicular lines meet at **90°** and their gradients are **negative reciprocals** of each other: $m_2 = -\frac{1}{m_1}$ (flip the fraction upside down and change the sign, so $m_1 \times m_2 = -1$).

Example 1: Find the equation of the line **parallel** to **$2y - 6x = 5$** that passes through **$(1, -2)$**.

Solution:

Rearrange: $2y = 6x + 5 \rightarrow$ **$y = 3x + 2.5$**, so **$m = 3$**
Substitute $m = 3$ and $(1, -2)$ into $y = mx + c$:
$-2 = 3(1) + c \rightarrow$ **$c = -5$**
Answer: $y = 3x - 5$

Example 2: Find the equation of the line **perpendicular** to **$y = \frac{2}{3}x + 4$** passing through **$(4, -1)$**.



Solution:

Perpendicular gradient $m_\perp = -\frac{3}{2}$ (negative reciprocal)
Sub $m = -\frac{3}{2}$ and $(4, -1)$: $-1 = -\frac{3}{2}(4) + c \rightarrow$ **$c = 5$**
Answer: $y = -\frac{3}{2}x + 5$

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Maths Genie	Qs	Ans	**Maths Made Easy**	Qs	Ans
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