

Parallel Lines – Notes and Examples

Key Concept:

Parallel lines have the **same gradient (slope)**.

So, if a line is **parallel** to a given line, it will have **the same gradient** as that line.

Example:

Find the equation of the line parallel to

$$y = 4x - 1$$

that passes through $(1, -3)$.

Step 1: Identify the gradient (slope)

The given line is in the form:

$$y = mx + c$$

Where:

- m is the gradient
- c is the y-intercept

So from $y = 4x - 1$, we see that:

👉 Gradient $m = 4$

Step 2: Use the point-slope form

We now use the point-slope formula for the equation of a straight line:

$$y - y_1 = m(x - x_1)$$

We plug in:

- $m = 4$
- $(x_1, y_1) = (1, -3)$

$$y - (-3) = 4(x - 1)$$

$$y + 3 = 4(x - 1)$$

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Step 3: Simplify to standard form

$$y + 3 = 4x - 4$$

$$y = 4x - 7$$

Final Answer:

The equation of the line is

$y = 4x - 7$