GCSE HIGHER · REVISION MAT 1

Equations of straight lines

1 Write down the gradient and the y-intercept of

$$y = 3x - 5$$

2 Find the gradient of the line through (1, 2) and (4, 11).

3 Is the point (3, 7) on the line $y = 2x + 1$?

Show how you know.

4 Find the equation of the line through (2, 5) that is parallel to $y = 4x - 1$.

5 Show that these lines are parallel.

$$y = 2x + 3$$
$$2y - 4x = 7$$

6 A line passes through A(1, 3) and B(5, 11).

Find where the line crosses the x-axis.

7 Find the equation of the line perpendicular to $y = 3x + 2$ that passes through (6, 1).

8 A is (2, 1) and B is (6, 9).

Find the equation of the perpendicular bisector of AB.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 1

Equations of straight lines

1 **Gradient 3, y-intercept -5**

2 $\frac{11-2}{4-1} = \frac{9}{3}$

Gradient = 3

3 When $x = 3$: $y = 2 \times 3 + 1 = 7$

Yes, (3, 7) is on the line.

4 Gradient 4: $y = 4x + c$

$5 = 8 + c \Rightarrow c = -3$

$\boldsymbol{y = 4x - 3}$

5 $2y = 4x + 7 \Rightarrow y = 2x + 3.5$

Both have gradient 2, so they are parallel.

6 Gradient $\frac{8}{4} = 2$, $y = 2x + 1$

$0 = 2x + 1$

$(-0.5, 0)$

7 Gradient $-\frac{1}{3}$

$1 = -2 + c \Rightarrow c = 3$

$\boldsymbol{y = -\frac{1}{3}x + 3}$

8 Midpoint (4, 5), gradient AB = 2

Perpendicular gradient $-\frac{1}{2}$

$5 = -2 + c$

$\boldsymbol{y = -\frac{1}{2}x + 7}$

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