GCSE HIGHER · REVISION MAT 3

Equations of straight lines

1 Write down the gradient of

$y = 7 - 2x$

2 Find the gradient of the line joining (–2, 3) and (2, –5).

3 Explain why the line $y = 4x$ passes through the origin.

4 Find the equation of the line through (3, 4) that is parallel to $2x + y = 7$.

5 L1 is $y = 3x - 2$.

L2 passes through (0, 5) and (2, 11).

Are L1 and L2 parallel? Explain.

6 A is (0, 2) and B is (6, 5).

C lies on line AB and has x-coordinate 10.

Find the y-coordinate of C.

7 O is (0, 0), A is (4, 2) and B is (3, –6).

Show that angle AOB is a right angle.

8 A is (1, 1), B is (5, 3) and C is (3, 7).

Find the equation of the line through C perpendicular to AB.

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Equations of straight lines

1 **−2**

2 $\frac{-5-3}{2-(-2)} = \frac{-8}{4}$

Gradient = −2

3 When $x = 0$, $y = 0$.

The y-intercept is 0.

4 $y = -2x + 7$, gradient -2

$4 = -6 + c \Rightarrow c = 10$

$y = -2x + 10$

5 Gradient of L2 $= \frac{6}{2} = 3$

Yes, both have gradient 3.

6 Gradient $\frac{3}{6} = 0.5$

$y = 0.5x + 2$

$y = 7$, so C is (10, 7)

7 Gradient OA $= \frac{1}{2}$

Gradient OB $= -2$

$\frac{1}{2} \times (-2) = -1$, so OA ⊥ OB

8 Gradient AB $= \frac{2}{4} = \frac{1}{2}$

Perpendicular gradient -2

$7 = -6 + c$

$y = -2x + 13$

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