

Parallel and Perpendicular Lines

For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **25**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

- 1** Circle the equation of a line parallel to $y = 4x - 1$

[1 mark]

$y = -4x + 1$

$y = \frac{1}{4}x - 1$

$y = 4x + 7$

$y = -\frac{1}{4}x$

- 2** Write down the equation of the line that is parallel to $2y = 6x - 1$ and passes through the origin.

[1 mark]

Answer _____

- 3** Write down the gradient of a line perpendicular to $y = \frac{2}{3}x + 5$

[1 mark]

Answer _____

- 4** Work out the equation of the line that is parallel to $y = 3x - 2$ and passes through (2, 9)

[2 marks]

Answer _____

- 5 A straight line is perpendicular to $y = 4x - 5$
It passes through the point $(8, 1)$
Work out the equation of the line.

[3 marks]

Answer _____

- 6 Straight line L_1 has equation $2y = x + 6$
Straight line L_2 has equation $y + 2x = 3$
Are the lines L_1 and L_2 perpendicular?
Tick a box.
You must show your working.

[2 marks]

☐ Yes

☐ No

- 7 $PQRS$ is a parallelogram.
 P is $(1, 2)$, Q is $(5, 4)$ and S is $(-2, 5)$
Work out the equation of the line through S and R .
Give your answer in the form $y = mx + c$

[3 marks]

Answer _____

- 8** A is $(1, 2)$ and B is $(7, 6)$
Work out the equation of the perpendicular bisector of AB .

[4 marks]

Answer _____

- 9** The straight line L has equation $y = 2x - 3$
 P is the point $(-3, 6)$
 N is the point on L that is closest to P , so the line PN is perpendicular to L .
Work out the coordinates of N .

[4 marks]

Answer (_____ , _____)

- 10** A is $(2, 1)$, B is $(8, 4)$ and C is $(k, 10)$
Angle $ABC = 90^\circ$
Work out the value of k .

[4 marks]

Answer $k =$ _____