

Parallel and perpendicular



- 1 Here are the equations of five straight lines.

P: $y = 2x + 7$ Q: $y = -2x + 7$ R: $y = x + 7$ S: $y = -\frac{1}{2}x + 8$ T: $y = \frac{1}{2}x + 4$

- (a) Write down the letter of the line that is parallel to $y = x + 4$

When two lines are parallel their gradients are the same.

..... (1 mark)

- (b) Write down the letter of the line that is perpendicular to $y = 2x - 3$

When the gradient of a line is m , the gradient of a perpendicular line is $-\frac{1}{m}$.

..... (1 mark)



- 2 (a) A straight line L is parallel to $y = 3x - 4$ and passes through the point (4, 5). Find the equation of line L.

Guided

$m =$

..... =(.....) + c

Rearranging for c

$c =$

Hence, $y =$ x

Compare the straight line with $y = mx + c$ to find the value of m .

(3 marks)

- (b) Put a tick (✓) beside the equation which is the equation of a straight line that is perpendicular to the line with equation $y = 3x - 4$.

$y = 3x - 4$	$y = 4 - 3x$	$y = \frac{1}{3}x - 4$	$y = 4 - \frac{1}{3}x$	$y = 3x + 4$
--------------	--------------	------------------------	------------------------	--------------

(1 mark)

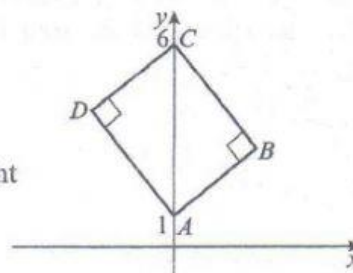


- 3 A straight line L passes through the point with coordinates (3, 7) and is perpendicular to the line with equation $y = 3x + 5$. Find the equation of the line L.

..... (3 marks)



- 4 ABCD is a rectangle. A is the point (0, 1) and C is the point (0, 6). The equation of the straight line through A and B is $y = 2x + 1$



- (a) Find the equation of the straight line through D and C.

..... (2 marks)

- (b) Find the equation of the straight line through B and C.

..... (2 marks)



- 5 The point P has coordinates (2, 1) and the point Q has coordinates (-2, -1). Find the equation of the perpendicular bisector of PQ.

..... (4 marks)