

Straight Line Graphs

GCSE Maths · Practice Questions

20 questions · 62 marks total

jtmaths.org · free maths resources

Section A · Foundation

Questions 1–3 are the most straightforward; they get harder as you go on. Question 10 is the most challenging.

1 [1 mark]

Write down the gradient of the line $y = 5x + 2$

.....

2 [2 marks]

A line has equation $y = -3x + 7$

(a) Write down the gradient.

(b) Write down the coordinates of the y -intercept.

.....

3 [2 marks]

Complete the table of values for $y = x + 3$

x	-2	0	2
y			

.....

4 [2 marks]

Which of these lines is parallel to $y = 4x - 1$?

A: $y = 4x + 3$ **B:** $y = -4x + 1$ **C:** $y = x + 4$

Give a reason for your answer.

.....

5 [3 marks]

Work out the gradient of the line joining (2, 3) and (6, 11).

.....

6

[3 marks]

- (a) Find the equation of the line with gradient 3 that passes through $(0, -2)$.
(b) Show that the point $(4, 10)$ lies on this line.
-

7

[3 marks]

- The line $2x + y = 8$ crosses the x -axis at A and the y -axis at B.
Write down the coordinates of A and B.
-

8

[3 marks]

- Rearrange $3y = 6x - 9$ into the form $y = mx + c$.
Write down the gradient and the y -intercept.
-

9

[4 marks]

- A straight line passes through $(1, 4)$ and $(3, 10)$.
Find the equation of the line.
-

10

[4 marks]

- A is the point $(-1, 2)$ and B is the point $(5, 10)$.
(a) Write down the coordinates of the midpoint of AB.
(b) Work out the gradient of AB.
(c) Work out the length of AB.
-

Higher-tier style. Again, questions 1–3 are the gentlest and question 10 is the hardest.

1 [2 marks]

Work out the gradient of the line joining $(-3, 5)$ and $(1, -3)$.

.....

2 [2 marks]

Rearrange $4x - 2y = 10$ into the form $y = mx + c$.

.....

3 [3 marks]

Find the equation of the line parallel to $y = -2x + 1$ that passes through the point $(3, 1)$.

.....

4 [3 marks]

Find the equation of the line perpendicular to $y = \frac{1}{2}x - 4$ that passes through the point $(2, 5)$.

.....

5 [4 marks]

A is the point $(1, 2)$ and B is the point $(5, 10)$.

Find the equation of the perpendicular bisector of AB.

.....

6 [4 marks]

A is $(-2, -5)$, B is $(1, 1)$ and C is $(4, 7)$.

(a) Show that A, B and C lie on the same straight line.

(b) Find the equation of that line.

.....

7**[4 marks]**

The line L has equation $3x + 2y = 12$

- (a) Find the gradient of L.
 - (b) Find the equation of the line perpendicular to L through (0, 1).
 - (c) Does the point (6, -3) lie on L? Show your working.
-

8**[4 marks]**

The line $y = -x + 6$ crosses the x -axis at P and the y -axis at Q. O is the origin.

- (a) Write down the coordinates of P and Q.
 - (b) Find the exact length of PQ.
 - (c) Find the area of triangle OPQ.
-

9**[4 marks]**

The line through (2, k) and (5, 11) has gradient 3.

- (a) Find the value of k.
 - (b) Find the equation of the line.
-

10**[5 marks]**

The line $y = 2x + 1$ meets the line $3x + 2y = 16$ at the point A.

- (a) Find the coordinates of A.
 - (b) Find the equation of the line through A that is perpendicular to $y = 2x + 1$
 - (c) Find where this perpendicular line crosses the x -axis.
-