Name: _____

GCSE (1 – 9)

The Gradient of a Line

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

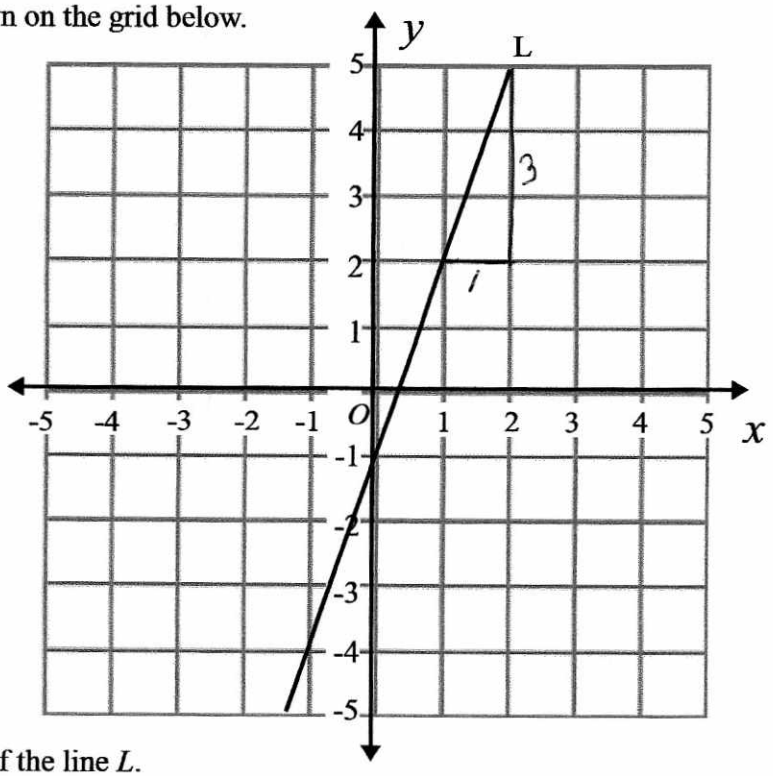
Information

- The marks for each question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

1 The line L is drawn on the grid below.

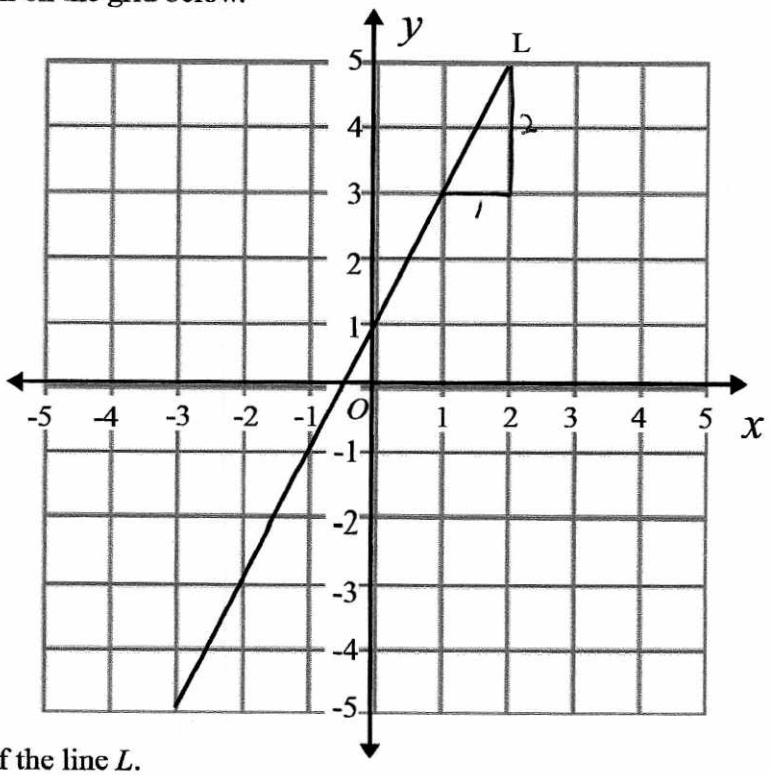


Find the gradient of the line L.

3

(Total for question 1 is 1 mark)

2 The line L is drawn on the grid below.

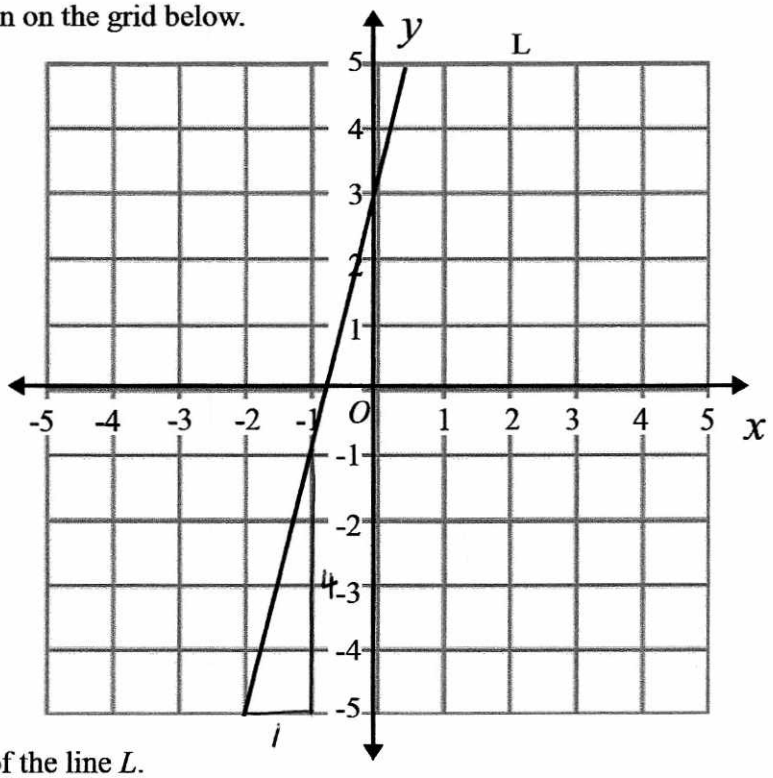


Find the gradient of the line L.

2

(Total for question 2 is 1 mark)

3 The line L is drawn on the grid below.

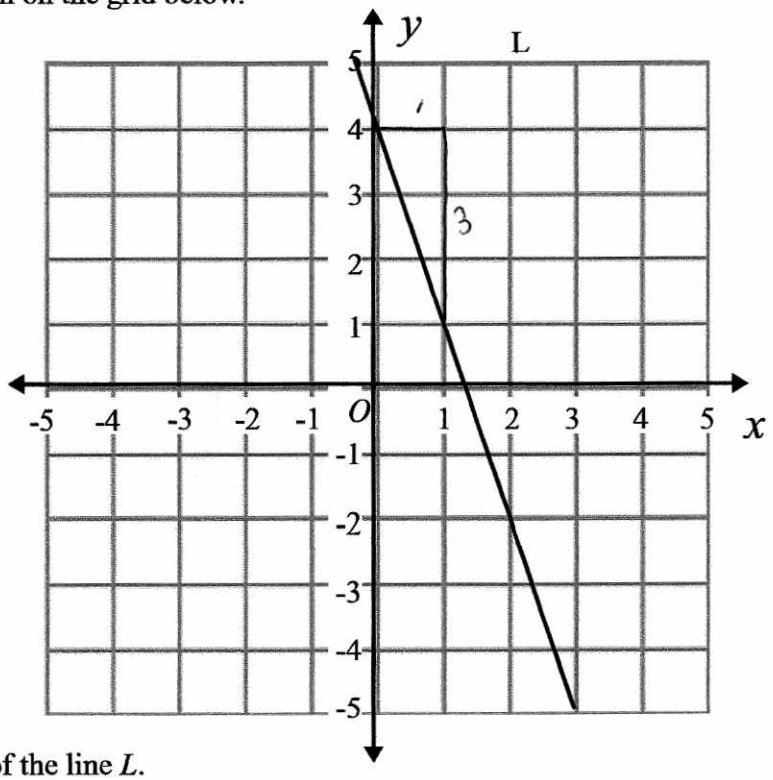


Find the gradient of the line L.

4

(Total for question 3 is 1 mark)

4 The line L is drawn on the grid below.

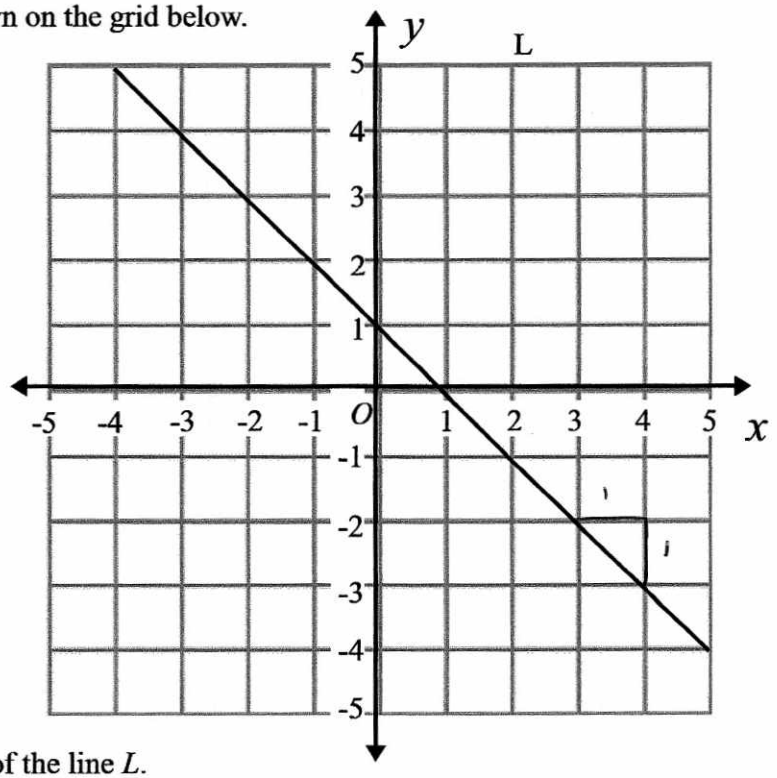


Find the gradient of the line L.

-3

(Total for question 4 is 1 mark)

5 The line L is drawn on the grid below.

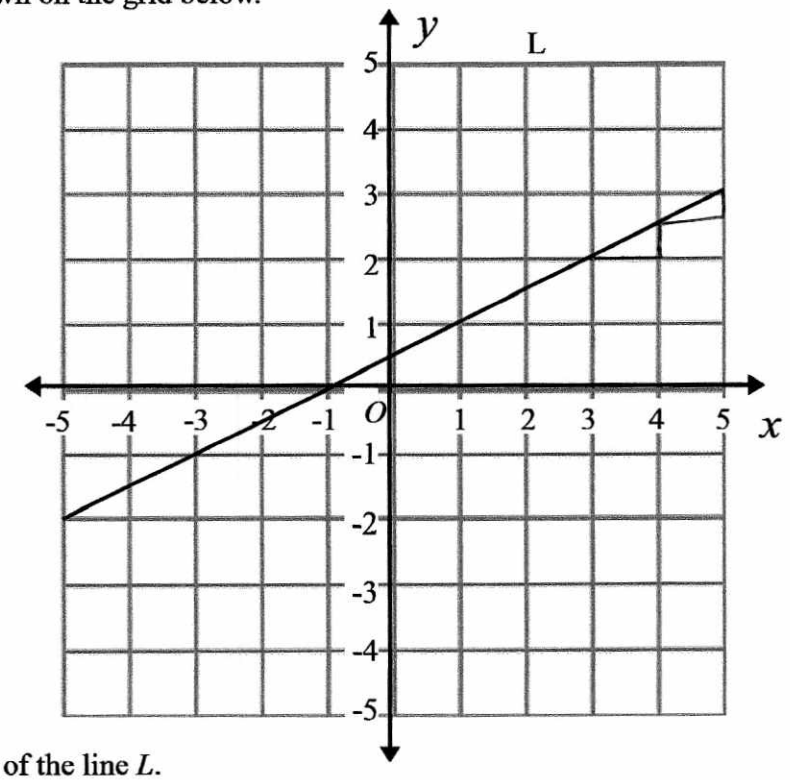


Find the gradient of the line L.

-1

(Total for question 5 is 1 mark)

6 The line L is drawn on the grid below.



Find the gradient of the line L.

$\frac{1}{2}$

(Total for question 6 is 1 mark)

7 Find the gradient of the line that passes through (2, 1) and (5, 10).

$x_1\ y_1\ \ x_2\ y_2$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{10 - 1}{5 - 2}$$

$$= \frac{9}{3}$$

3

(Total for question 7 is 2 marks)

8 Find the gradient of the line that passes through (5, 4) and (7, 0).

$x_1\ y_1\ \ x_2\ y_2$

$$m = \frac{0 - 4}{7 - 5}$$

$$= \frac{-4}{2}$$

$$= -2$$

-2

(Total for question 8 is 2 marks)

9 Find the gradient of the line that passes through (-3, 4) and (5, 8).

$x_1\ y_1\ \ x_2\ y_2$

$$m = \frac{8 - 4}{5 - -3}$$

$$= \frac{4}{8}$$

$$= \frac{1}{2}$$

$\frac{1}{2}$

(Total for question 9 is 2 marks)

10 Find the gradient of the line that passes through (3, 7) and (1, 10).

$x_1\ y_1\ x_2\ y_2$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{10 - 7}{1 - 3}$$

$$= \frac{3}{-2}$$

$$= -1.5$$

-1.5

(Total for question 10 is 2 marks)

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11 Find the gradient of the line that passes through (1, -1) and (-3, -9).

$x_1\ y_1\ x_2\ y_2$

$$m = \frac{-9 - -1}{-3 - 1}$$

$$= \frac{-8}{-4}$$

$$= 2$$

2

(Total for question 11 is 2 marks)

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12 Find the gradient of the line that passes through (8, 1) and (3, -3).

$x_1\ y_1\ x_2\ y_2$

$$m = \frac{-3 - 1}{3 - 8}$$

$$= \frac{-4}{-5}$$

$$= \frac{4}{5}$$

$\frac{4}{5}$

(Total for question 12 is 2 marks)

13 Find the gradient of the line that passes through (3, -1) and (-2, 9).

$x_1\ y_1\ \ x_2\ y_2$

$$m = \frac{9 - -1}{-2 - 3}$$

$$= \frac{10}{-5}$$

$$= -2$$

-2

(Total for question 13 is 2 marks)

14 Find the gradient of the line that passes through (-1, -2) and (-3, 10).

$x_1\ y_1\ \ x_2\ y_2$

$$m = \frac{10 - -2}{-3 - -1}$$

$$= \frac{12}{-2}$$

$$= -6$$

-6

(Total for question 14 is 2 marks)

15 Find the gradient of the line that passes through (-3, 4) and (-5, 7).

$x_1\ y_1\ \ x_2\ y_2$

$$m = \frac{7 - 4}{-5 - -3}$$

$$= \frac{3}{-2}$$

$$= -1.5$$

-1.5

(Total for question 15 is 2 marks)

16 The line AB passes through the points A(2, -1) and $(6, k)$.

The gradient of AB is 5.

Work out the value of k.

$x_1\ y_1\ x_2\ y_2$

$$5 = \frac{k - -1}{6 - 2}$$

$$5 = \frac{k + 1}{4}$$

$$20 = k + 1$$

$$k = 19$$

$k =$ 19

(Total for question 16 is 3 marks)

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17 The line AB passes through the points A(-3, 4) and $(k, 12)$.

The gradient of AB is 4.

Work out the value of k.

$x_1\ y_2\ x_2\ y_2$

$$4 = \frac{12 - 4}{k - -3}$$

$$4 = \frac{8}{k + 3}$$

$$4(k + 3) = 8$$

$$k + 3 = 2$$

$$k = -1$$

$k =$ −1

(Total for question 17 is 3 marks)

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18 The line AB passes through the points A(-2, k) and (4, 8).

The gradient of AB is -2.

Work out the value of k.

$x_1\ y_1\ x_2\ y_2$

$$-2 = \frac{8 - k}{4 - -2}$$

$$-2 = \frac{8 - k}{6}$$

$$-12 = 8 - k$$

$$-12 + k = 8$$

$$k = 20$$

$k =$ 20

(Total for question 18 is 3 marks)