Name:

Exam Style Questions

Equation of a Line

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

Secondary

Video 188
Video 191
Video 194
Video 195

1. A line has equation $y = 3x + 4$

(a) Write down the gradient of the line

3

(1)

(b) Write down the y-intercept of the line

(0, 4) or 4

(1)

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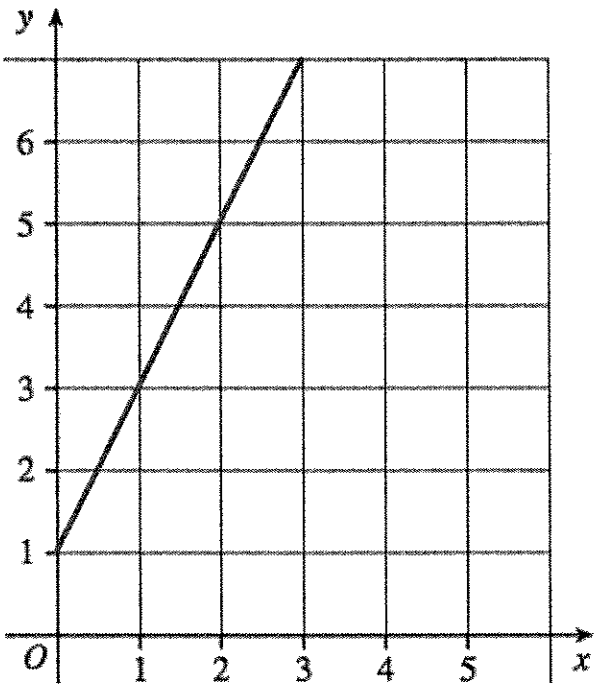
2. A straight line **L** is shown on the grid.

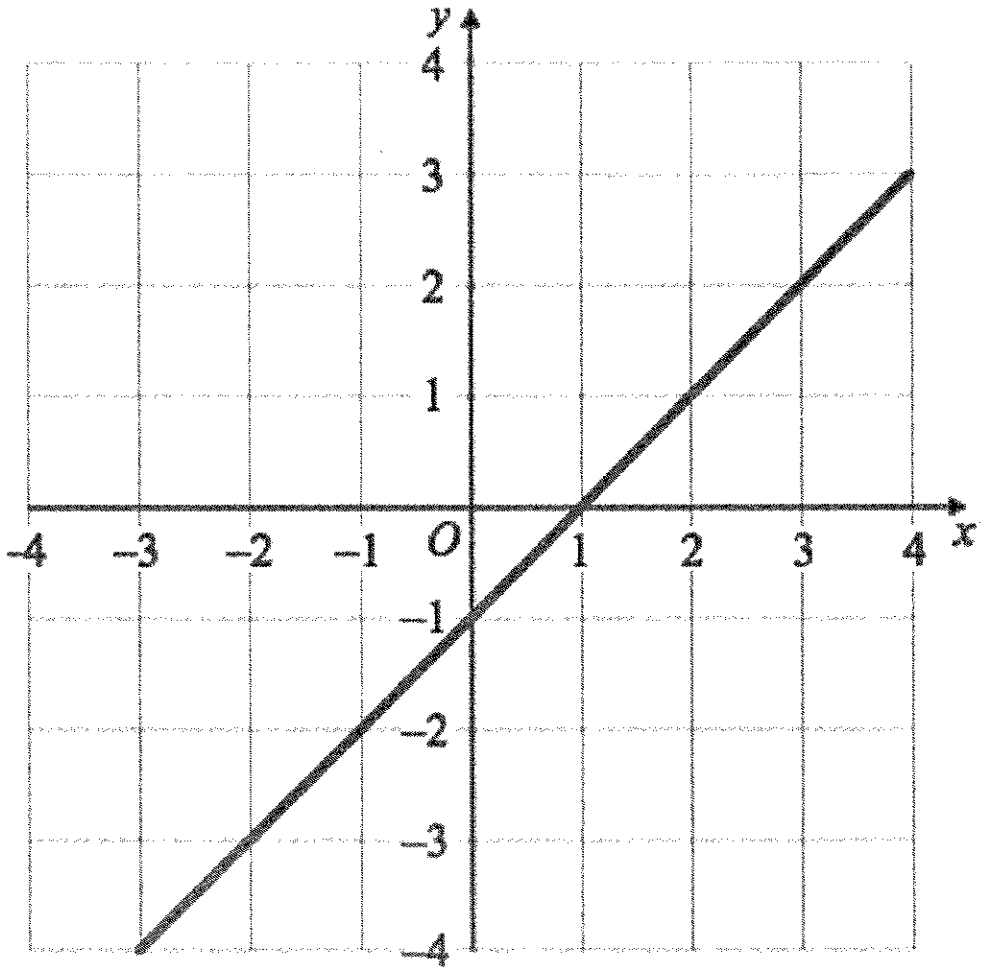


Work out the equation of line L

$y = 2x + 1$

(3)

3. A straight line L is shown on the grid.



Work out the equation of line L

$y = x - 1$

$y = x - 1$

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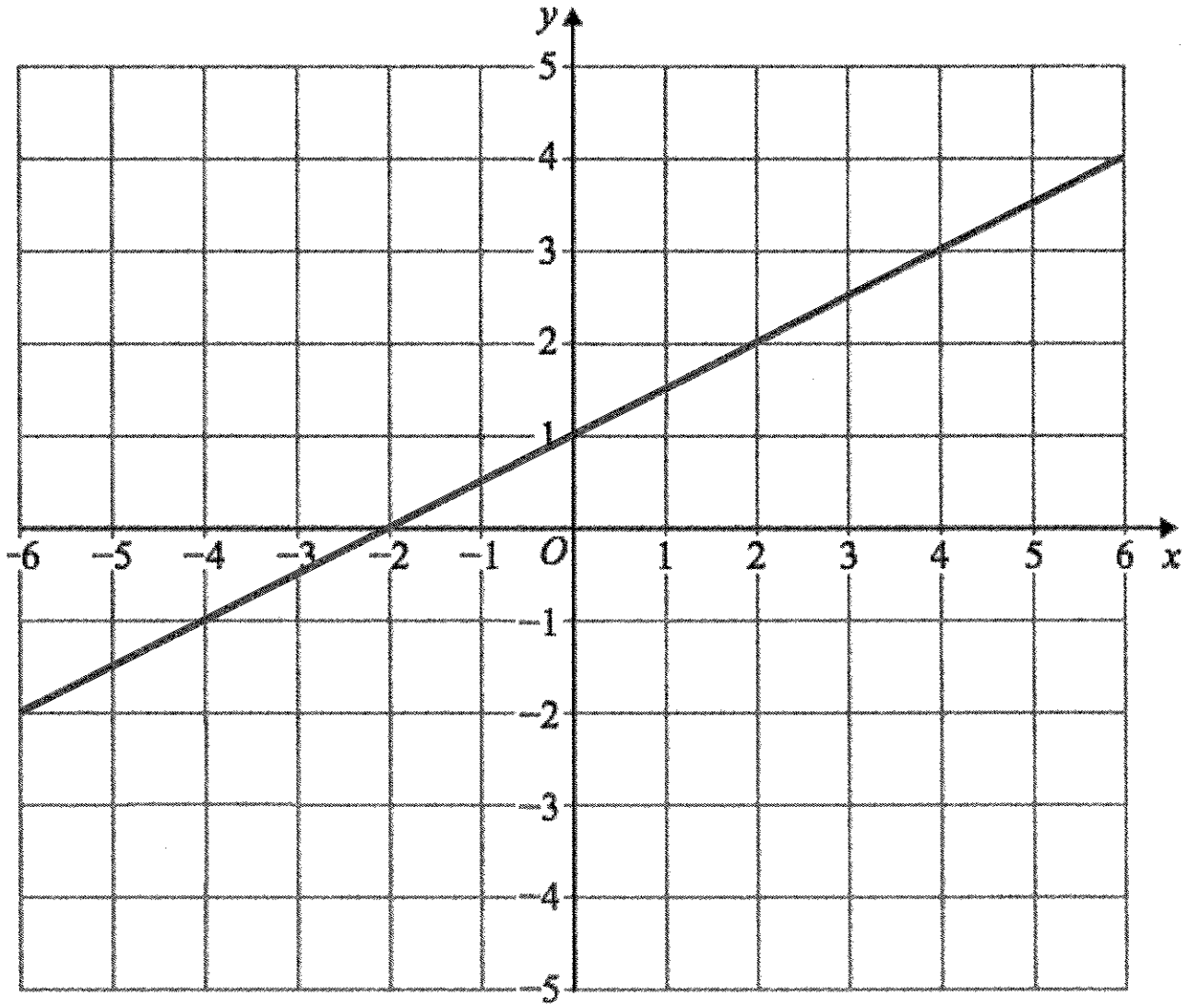
(3)

4. A straight line L is shown on the grid.

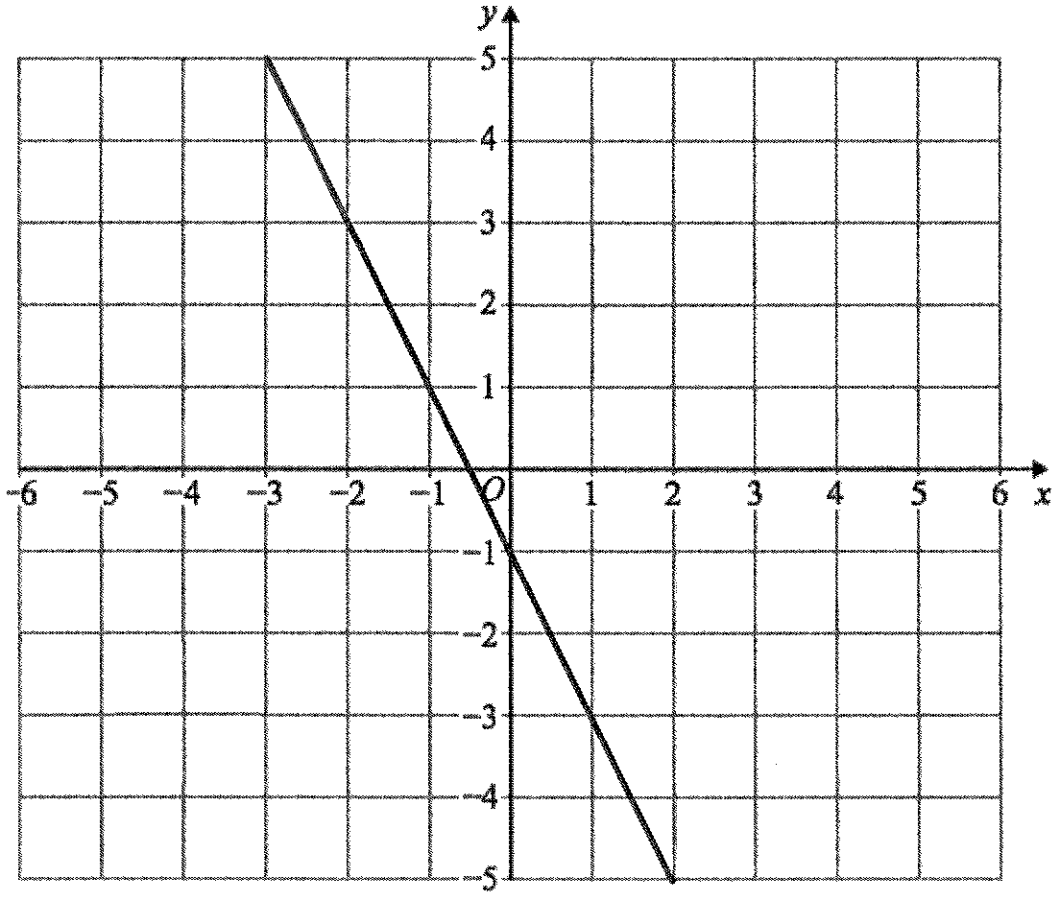


Work out the equation of line L

$y = \frac{1}{2}x + 1$

(3)

5. A straight line L is shown on the grid.

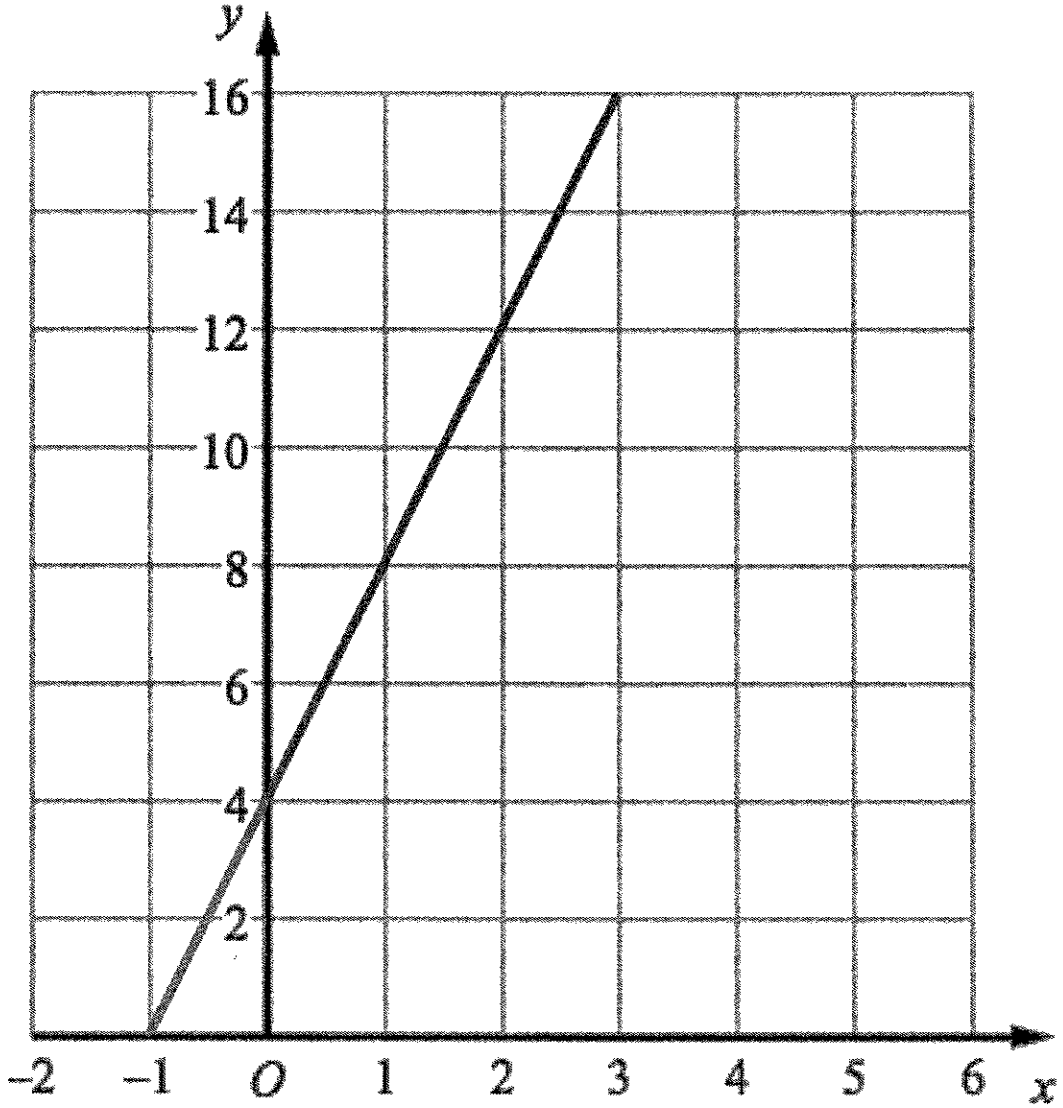


Work out the equation of line L

$y = -2x - 1$

(3)

6. A straight line L is shown on the grid.



Work out the equation of line L

$y = 4x + 4$

(3)

7. Work out the gradient of the line $y + 7x = 8$

$y = -7x + 8$

-7

(2)

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8. A line has equation $3x + y = 15$

(a) Find the gradient of the line.

$y = -3x + 15$

-3

(2)

(b) Find where the line crosses the y-axis

$(0, 15)$

(1)

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9. A line has equation $6x + 2y + 9 = 0$

(a) Find the gradient of the line.

$2y = -6x - 9$

$y = -3x - 4.5$

-3

(2)

(b) Find where the line crosses the y-axis

$(0, -4.5)$

(1)

10. The equations of four lines are given below.

Line A	$y = 4x + 1$
Line B	$y + 2x = 8$
Line C	$y = 9 - 2x$
Line D	$y - 3x = 3$

Which lines go through the point (2, 9)?

Line A
$9 = 4 \times 2 + 1$
$9 = 9$ ✓

Line B
$9 + 2 \times 2 = 8$
$9 + 4 = 8$ ✗

Line C
$9 = 9 - 2 \times 2$
$9 = 9 - 4$
$9 = 5$ ✗

Line D
$9 - 3 \times 2 = 3$
$9 - 6 = 3$ ✓

Line A & line D

(2)

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11. The line L passes through the points (0, 7) and (3, 19).

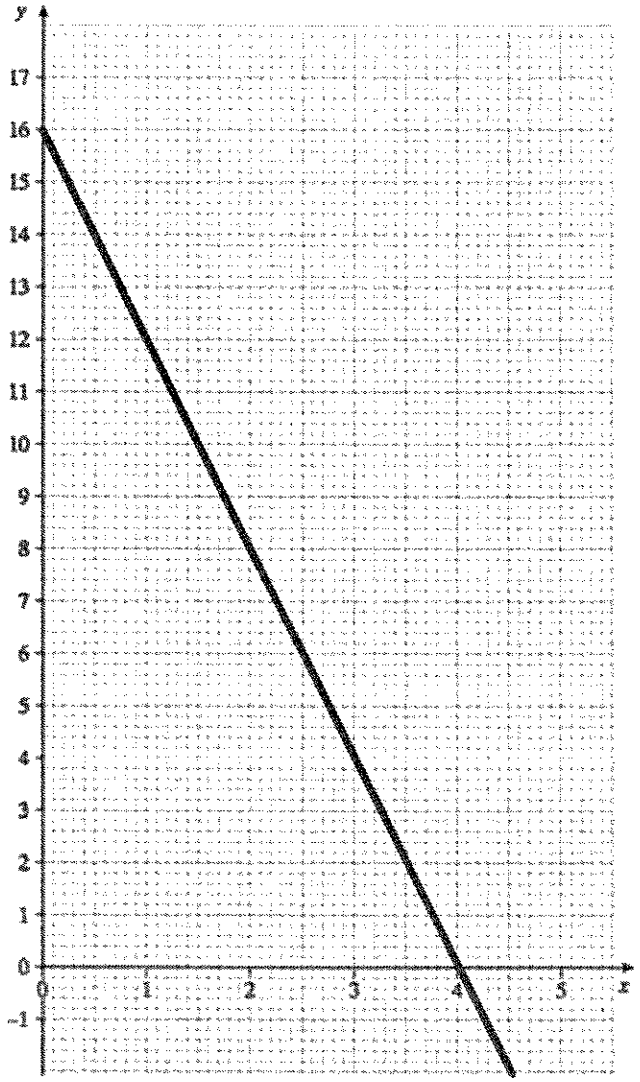
Work out the equation of the line L.

gradient, $m = \frac{19-7}{3-0} = \frac{12}{3} = 4$

$y = 4x + 7$

(2)

12.



(a) Find the equation of the line.

$m = \frac{0-16}{4-0} = \frac{-16}{4} = -4$

$y = -4x + 16$

(3)

(b) Give the y-coordinate of the point on the line with an x-coordinate of 8

$y = -4 \times 8 + 16$

$y = -32 + 16$

$y = -16$

-16

(2)

13. The point A (–3, 5) and the point B (1, –15) lie on the line L.

Find the equation of the line L.

$m = \frac{-15-5}{1--3} = \frac{-20}{4} = -5$

$(1,-15) \rightarrow y = -5x + c$

$-15 = -5 \times 1 + c$

$-15 = -5 + c$

$c = -10$

$y = -5x - 10$

.....

(4)

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14. The point A (1, 1) and the point B (5, –1) lie on the line L.

Find the equation of the line L.

$m = \frac{-1-1}{5-1} = \frac{-2}{4} = -\frac{1}{2}$

$(1,1) \rightarrow y = -\frac{1}{2}x + c$

$1 = -\frac{1}{2} \times 1 + c$

$1 = -\frac{1}{2} + c$

$c = 1.5$

$y = -\frac{1}{2}x + 1.5$

.....

(4)

15. A line has a gradient of 8 and passes through the point (2, 3).
Find the equation of the line.

$y = 8x + c$

$3 = 8 \times 2 + c$

$3 = 16 + c$

$c = -13$

$y = 8x - 13$

(3)

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16. A line has a gradient of $-\frac{1}{2}$ and passes through the point (–6, –8).
Find the equation of the line.

$y = -\frac{1}{2}x + c$

$-8 = -\frac{1}{2}x - 6 + c$

$-8 = 3 + c$

$c = -11$

$y = -\frac{1}{2}x - 11$

(3)

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17. A line has a gradient of $-\frac{4}{5}$ and passes through the point (30, 24).
Find the equation of the line.

$y = -\frac{4}{5}x + c$

$24 = -\frac{4}{5} \times 30 + c$

$24 = -24 + c$

$c = 48$

$y = -\frac{4}{5}x + 48$

(3)

18.

(a) Write down the gradient of the straight line with equation $y = 8x + 2$

8

.....

(1)

The line cuts the y-axis at the point A

(b) Write down the coordinates of the point A.

$x = 0$

$y = 8x + 2$

$y = 2$

(0, 2)

.....

(1)

The line cuts the x-axis at the point B

(c) Write down the coordinates of the point B.

$y = 0$

$0 = 8x + 2$

$-2 = 8x$

$x = \frac{-2}{8} = -\frac{1}{4}$

$(-\frac{1}{4}, 0)$

.....

(2)