2.16 Straight Line Graphs: y = mx + c: 1-hour Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A straight line has gradient -7 and passes through the point (3, -17). Find the equation of the line.

(3)

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2 A straight line passes through (-3, -9) and (-1, -7). Find the equation of the line.

(3)

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3 Work out the gradient of the straight line through (-1, -1) and (0, 4).

(2)

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4 Find the equation of the line that is parallel to y = 3x + 2 and passes through (0, -7).

(3)

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5 A straight line has gradient 5 and crosses the y-axis at (0, -8). Write down the equation of the line.

(2)

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6 Find the equation of the line that is parallel to y = -6x - 3 and passes through (3, -14).

(3)

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7 Does the point (2, 6) lie on the line y = 5x - 3? You must show your working.

(2)

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8 A straight line has gradient -8 and passes through the point (4, -32). Find the equation of the line.

(3)

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9 The taxi fare is given by C = 23 + 9d, where the variable counts miles.
Work out the value of C for 7 miles.

(2)

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10 Find the coordinates of the points where the line $y = x + 5$ crosses (a) the y-axis (b) the x-axis.

(2)

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11 A straight line has equation $y = 2x - 2$.
Write down (a) the gradient (b) the y-intercept.

(2)

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12 The point (k, 5) lies on the line $y = 2x - 1$. Find the value of k.

(2)

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13 A straight line passes through (-3, 7) and (0, 4). Find the equation of the line.

(3)

---

14 The point (k, 10) lies on the line $y = 5x + 5$. Find the value of k.

(2)

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15 A straight line has gradient 1 and crosses the y-axis at (0, 7). Write down the equation of the line.

(2)

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16 Find the equation of the line that is parallel to y = -5x + 6 and passes through (1, -10).

(3)

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17 Complete a table of values for y = -3x + 5 for x = 0, x = 4 and x = 5.

(2)

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18 Write down the equation of a straight line that is parallel to y = -5x + 1 and crosses the y-axis at (0, -1).

(2)

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19 For the line y = 6 - 2x, state the gradient and the y-intercept.

(1)

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20 A line passes through the points (1, 3) and (4, 9). Calculate the gradient of this line.

(2)

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Mark scheme · 2.16 Straight Line Graphs: y = mx + c: 1-hour Pack

Question 1

y = -7x + c with (3, -17) substituted	M1
c = 4 found	M1
y = -7x + 4 cao	A1

Answer: **y = -7x + 4**

Question 2

gradient found	M1
substitutes a point to find c	M1
y = x - 6 cao	A1

Answer: **y = x - 6**

Question 3

(4 - (-1))/(0 - (-1)) or equivalent	M1
5 cao	A1

Answer: **5**

Question 4

gradient 3 used	M1
substitutes the point to find c	M1
y = 3x - 7 cao	A1

Answer: **y = 3x - 7**

Question 5

y = mx + c with the gradient or intercept correct	M1
y = 5x - 8 cao	A1

Answer: **y = 5x - 8**

Question 6

gradient -6 used	M1
substitutes the point to find c	M1
y = -6x + 4 cao	A1

Answer: **y = -6x + 4**

Question 7

substitutes x = 2 to get y = 7	M1
No with comparison	A1

Answer: **No**

Question 8

y = -8x + c with (4, -32) substituted	M1
c = 0 found	M1
y = -8x cao	A1

Answer: **y = -8x**

Question 9

substitutes 7	M1
86 cao	A1

Answer: **86**

Question 10

(a) (0, 5)	B1
(b) (-5, 0)	B1

Answer: **(a) (0, 5), (b) (-5, 0)**

Question 11

(a) 2	B1
(b) -2	B1

Answer: **(a) 2, (b) -2**

Question 12

5 = 2k - 1 (or equivalent)	M1
3 cao	A1

Answer: **3**

Question 13

gradient found	M1
substitutes a point to find c	M1
y = -x + 4 cao	A1

Answer: **y = -x + 4**

Question 14

10 = 5k + 5 (or equivalent)	M1
1 cao	A1

Answer: **1**

Question 15

y = mx + c with the gradient or intercept correct	M1
y = x + 7 cao	A1

Answer: **y = x + 7**

Question 16

gradient -5 used	M1
substitutes the point to find c	M1
y = -5x - 5 cao	A1

Answer: **y = -5x - 5**

Question 17

at least one value of y correct	M1
all three values correct	A1

Answer: **x = 0: y = 5, x = 4: y = -7, x = 5: y = -10**

Question 18

gradient -5 used	M1
y = -5x - 1 cao	A1

Answer: **y = -5x - 1**

Question 19

gradient -2, y-intercept (0, 6)	B1

Answer: **gradient = -2, y-intercept = (0, 6)**

Question 20

correct method, e.g. (9 - 3) / (4 - 1)	M1
2 cao	A1

Answer: **2**

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