2.16 Straight Line Graphs: y = mx + c: 30-minute Pack

Calculators not allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 The graph of a line is shown passing through (1, 4) and (4, 1). Find the equation of the line in the form y = mx + c.

(3)

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2 The cost of hiring a van is given by the straight line graph with equation C = 17 + 6d, where the variable counts days.
Write down the y-intercept and say what it represents.

(2)

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3 A straight line passes through (-3, -13) and (-1, -5). Find the equation of the line.

(3)

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4 Complete a table of values for y = 2x + 2 for x = -3, x = -1 and x = 5.

(2)

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5 A straight line has gradient -7 and crosses the y-axis at (0, 5). Write down the equation of the line.

(2)

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6 Does the point (5, 36) lie on the line $y = 6x + 6$? You must show your working.

(2)

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7 A straight line has equation $y = 7x + 4$.
Write down (a) the gradient (b) the y-intercept.

(2)

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8 Write down the equation of a straight line that is parallel to $y = 2x + 2$ and crosses the y-axis at (0, 8).

(2)

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9 A line has equation $y = 3x + 4$. State the gradient and the y-intercept.

(1)

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10 Given the line y = 5x - 8, a student plots the point (3, 6) and says it lies on the line. Is the student correct? Show your working.

(3)

11 For the line y = -2x + 7, calculate y when x = 0 and when x = 3. Give both values.

(1)

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Mark scheme · 2.16 Straight Line Graphs: y = mx + c: 30-minute Pack

Question 1

Calculate gradient using (1 - 4)/(4 - 1) or (change in y)/(change in x)	M1
Obtain gradient m = -1	M1
Substitute to find c and give equation y = -x + 5 cao	A1

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

Question 2

y-intercept = 17	B1
the starting value when there are 0 days	B1

Answer: **17; it is the starting value when there are 0 days**

Question 3

gradient found	M1
substitutes a point to find c	M1
y = 4x - 1 cao	A1

Answer: **y = 4x - 1**

Question 4

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

Answer: **x = -3: y = -4, x = -1: y = 0, x = 5: y = 12**

Question 5

y = mx + c with the gradient or intercept correct	M1
y = -7x + 5 cao	A1

Answer: **y = -7x + 5**

Question 6

substitutes x = 5 to get y = 36	M1
Yes with comparison	A1

Answer: **Yes**

Question 7

(a) 7	B1
(b) 4	B1

Answer: **(a) 7, (b) 4**

Question 8

gradient 2 used	M1
y = 2x + 8 cao	A1

Answer: **y = 2x + 8**

Question 9

gradient 3, y-intercept (0, 4)	B1

Answer: **gradient = 3, y-intercept = (0, 4)**

Question 10

substitutes x = 3 into y = 5x - 8	M1
finds y = 7	A1
correct conclusion: the student is incorrect, since 7 does not equal 6	B1

Answer: **No, when x = 3, y = 7, not 6**

Question 11

y = 7 and y = 1	B1

Answer: **y = 7 when x = 0; y = 1 when x = 3**

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