Straight Line Graph GCSE Maths EDEXCEL Past Papers Answers

None Calculator

1.

(a)	Table of values x = -1 0 1 2 3 y = 2 2 6 10 14 OR Using $y= mx + c$, gradient = 4, y intercept = 2	Line from (1, 2) to (3,14)	3	**(Table of values)** M1 for at least 2 correct attempts to find points by substituting values of x. M1 ft for plotting at least 2 of their points (any points plotted from their table must be correct) A1 for correct line between 1 and 3 **(No table of values)** M2 for at least 2 correct points (and no incorrect points) plotted OR line segment of $y= 4x + 2$ drawn (ignore any additional incorrect segments) (M1 for at least 3 correct points with no more than 2 incorrect points) A1 for correct line between -1 and 3 **(Use of $y= mx + c$)** M2 for at least 2 correct points (and no incorrect points) plotted OR line segment of $y = 4x + 2$ drawn (ignore any additional incorrect segments) (M1 for line drawn with gradient 4 OR line drawn with a y intercept of 2) A1 for correct line between 1 and 3
(b)(i)		$y= 4x + c, c \neq 2$	1	B1 Correct equation given.
(ii)		-0.25	1	B1 Correct gradient given. Note -0.25 could be written as $-\frac{1}{4}$ oe

2.

| | $\frac{3+7}{2}, \frac{8+5}{2}$ | $(5, 6\frac{1}{2})$ | 2 | M1 for either x or y coordinate correct or $\frac{3+7}{2}, \frac{8+5}{2}$, both seen but not correctly evaluated
A1 for $(5, 6\frac{1}{2})$ oe |

3.

| (a) | | $(0, 2, 4)$ | 1 | B1 cao |
| (b) | $\left(\frac{0+6}{2}, \frac{2+2}{2}, \frac{4+4}{2}\right)$ | $(3, 2, 4)$ | 2 | M1 for an answer of $(a, 2, 4)$ or $(3, b, 4)$ or $(3, 2, c)$ or for[("0" + 6) ÷2, ("2" + 2) ÷2, ("4" + 4) ÷2] This may be implied by their answer with no working seen
A1 for $(3, 2, 4)$ cao |

4.

uestion	Working	Answer	Mark	Notes
(a)		equation	1	B1 for $y = 3x + k$, $k \neq -5$ or any other equivalent form
(b)		$y = -\frac{1}{3}x + 7$	3	B1 for $-\frac{1}{3}$ or $3m = -1$ oe M1 for $y = -\frac{1}{3}x + c$ or $5 = -\frac{1}{3} \times 6 + c$ or $\frac{y-5}{x-6} = -\frac{1}{3}$ A1 for $y = -\frac{1}{3}x + 7$ oe OR B1 for $x + 3y + k = 0$ or $x + 3y = k$ M1 for $6 + 3 \times 5 + k = 0$ A1 for $x + 3y - 21 = 0$ oe

5.

uestion	Working	Answer	Mark	Notes
	$\begin{array}{\|c\|c\|c\|c\|c\|c\|c\|} \hline x & -2 & -1 & 0 & 1 & 2 & 3 \\ \hline y & -5 & -3 & -1 & 1 & 3 & 5 \\ \hline \end{array}$ OR Using $y = mx + c$, gradient = 2, y intercept = -1	Line $y = 2x - 1$ drawn	3	**(Table of values)** M1 for at least 2 correct attempts to find points by substituting values of x M1 (dep) ft for plotting at least 2 of their points (any points plotted from their table must be correct) A1 for correct line between $x = -2$ and $x = 3$ **(No table of values)** M2 for at least 2 correct points (and no incorrect points) plotted OR line segment of $y = 2x - 1$ drawn (ignore any additional incorrect segments) (M1 for at least 3 correct points with no more than 2 incorrect points) A1 for correct line between $x = -2$ and $x = 3$ **(Use of $y = mx + c$)** M2 line segment of $y = 2x - 1$ drawn (ignore any additional incorrect segments) (M1 for line drawn with gradient of 2 OR line drawn with y intercept of -1 and a positive gradient) A1 for correct line between $x = -2$ and $x = 3$

6.

	Working	Answer	Mark	Notes
	$\left(\dfrac{1+4}{2}, \dfrac{2+0}{2}\right)$	(2.5, 1)	2	M1 for $\dfrac{1+4}{2}$ and $\dfrac{2+0}{2}$ or for either the x coordinate correct or the y coordinate correct A1 for (2.5, 1) oe SC: B1 for an answer of (1, 2.5) if M0 scored

7.

		Straight line from (–2, –10) to (3, 10)	3	**(Table of values)** M1 for at least 2 correct attempts to find points by substituting values of x M1 (dep) ft for plotting at least 2 of their points (any points plotted from their table must be correctly plotted) A1 for correct line between $x = -2$ and $x = 3$ **(No table of values)** M2 for at least 2 correct points and no incorrect points plotted OR line segment of $y = 4x - 2$ drawn (ignore any additional incorrect segments) (M1 for at least 3 correct points with no more than 2 incorrect points) A1 for correct line between $x = -2$ and $x = 3$ **(Use of $y = mx + c$)** M2 line segment of $y = 4x - 2$ drawn (ignore any additional incorrect segments) (M1 for line drawn with gradient of 4 OR line drawn with y intercept of –2 and a positive gradient) A1 for correct line between $x = -2$ and $x = 3$

Table of values:

x	–2	–1	0	1	2	3
y	–10	–6	–2	2	6	10

OR

Using $y = mx + c$

gradient = 4
y intercept = –2

8.

		Answer	Mark	Notes
(a)		$y = 4x + 2$	2	B2 for $y = 4x + 2$ oe (B1 for $y = 4x + c$ or $4x + 2$ or $L = 4x + 2$)
(b)		$y = 4x - 14$	3	B1 for gradient = 4 M1 for $-6 = '4' \times 2 + c$ or $y - -6 = '4'(x - 2)$ A1 for $y = 4x - 14$ oe

9.

estion	Working	Answer	Mark	Notes
	x -2 -1 0 1 2 3 y -7 -5 -3 -1 1 3	correct line	3	**(Table of values)** M1 for at least 2 correct attempts to find points by substituting values of x. M1 ft for plotting at least 2 of their points (any points plotted from their table must be correctly plotted) A1 for correct line between -2 and 3 **(No table of values)** M2 for at least 2 correct points (and no incorrect points) plotted OR line segment of $2x$-3 drawn (ignore any additional incorrect segments) (M1 for at least 3 correct points with no more than 2 incorrect points) A1 for correct line between -2 and 3 **(Use of $y=mx+c$)** M2 line segment of $2x$-3 drawn (ignore any additional incorrect segments) (M1 for line drawn with gradient of 2 OR line drawn with a y intercept of -3 and a positive gradient) A1 for correct line between -2 and 3

10.

		$(-3,-12,-1)$	2	B2 cao B1 for two out of three coordinates correct

11.

		$y = \dfrac{10}{3}x + \dfrac{130}{3}$	5	B1 for stating B as (0, 5) or $OB = 5$ (could be written on the diagram) B1 for C as (10, 0) or $OC = 10$ (could be written on the diagram) or A is (-10, 10) or ft from their BC M1 gradient of $DA = \dfrac{10}{3}$ or $y = \dfrac{10}{3}x + c$ M1 for substitution of $x = -13$, $y = 0$ or $x = -10$, $y = 10$ in their equation A1 $y = \dfrac{10}{3}x + \dfrac{130}{3}$ oe

12.

uestion	Working	Answer	Mark	Notes
	$y = \dfrac{1}{2}x + 3$ 	x	-2	-1	0	1	2	3	4
y	2	2.5	3	3.5	4	4.5	5		Correct line from $(-2, 2)$ to $(4, 5)$	3	**(Table of values / calculation of values)** M1 for at least 2 correct attempts to find points by substituting values of x. M1 ft for plotting at least 2 of their points (any points plotted from their table must be correctly plotted) A1 for correct line between $x = -2$ and $x = 4$ **(No table of values)** M1 for at least 2 correct points with no more than 2 incorrect points plotted M1 for at least 2 correct points (and no incorrect points) plotted **OR** line segment of $y = \dfrac{1}{2}x + 3$ drawn A1 for correct line between $x = -2$ and $x = 4$ **(Use of $y = mx + c$)** M1 for line drawn with gradient of $\dfrac{1}{2}$ **OR** line drawn with a y intercept of 3 M1 for line drawn with gradient of $\dfrac{1}{2}$ **AND** line drawn with a y intercept of 3 A1 for correct line between $x = -2$ and $x = 4$ **SC :** B2 for correct line from $x = 0$ to $x = 4$

13.

(a)		$(0, 5, 5)$	1	B1 cao
(b)		$(2\dfrac{1}{2}, 5, 2\dfrac{1}{2})$	1	B1 for $(2\dfrac{1}{2}, 5, 2\dfrac{1}{2})$ oe

14.

uestion	Working	Answer	Mark	Notes
		$y = \dfrac{3}{2}x - \dfrac{5}{2}$	4	M1 for attempt to find gradient of AB M1 (dep) for attempt to find gradient of perpendicular line eg use of $-\dfrac{1}{m}$ M1 for substituting $x = 3$, $y = 2$ into $y = $ "m" $x + c$ A1 for complete correct equation $y = \dfrac{3}{2}x - \dfrac{5}{2}$ oe

15.

(a)		(5, 2, 2)	1	B1 cao	E
(b)		(4, 2, 1)	2	M1 for an answer of (a, 2, 1) or (4, b, 1) or (4, 2, c) or ft from (a) A1 (4, 2, 1) or ft from (a)	E

16.

$\frac{-2}{6} = \frac{-1}{3}$ $1 = 3 \times 3 + c$	$y = 3x - 8$	4	M1 for gradient $\frac{-2}{6}$ M1 for use of $\frac{-1}{m}$ for perpendicular line M1 for substitution of (3,1) into their equation A1 for $y = 3x - 8$ oe	E

17.

(a)	Table of values $x = -1 \quad 0 \quad 1 \quad 2 \quad 3$ $y = -4 \quad 1 \quad 6 \quad 11 \quad 16$ **OR** Using $y = mx + c$, gradient = 5, y- intercept = 1	Single line from (−1, −4) to (3, 16)	3	B3 for a correct single line from (−1, −4) to (3, 16) [B2 for at least 3 correct points plotted and joined with line segments **OR** 3 correct points plotted two of which must be the extremes with no joining **OR** a single line of gradient 5 passing through (0, 1)] B1 for 2 correctly plotted points **OR** a single lie of gradient 5 **OR** a single line passing through (0, 1)	
(b)		D	1	B1 cao	
(c)	Gradient = $-\frac{1}{5}$, $c = 0$	$y = -\frac{1}{5}x$	2	M1 for $y = -\frac{1}{5}x + c$ A1 cao	
				Total for Question: 6 marks	