

Plotting Straight Line Graphs-Answers

Key Stage 3: 2003 Paper 1 Level 4-6

1.

Tier & Question				Lines on a square	
3-5	4-6	5-7	6-8	Correct response	Additional guidance
	21	14	6		
	a	a	2m	<p>Matches all three equations correctly, ie</p>	<p>✗ Any equation matched more than once</p>
			<p>or</p> <p>1m</p> <p>Matches any two equations correctly</p>		
	b	b	1m	<p>Gives a correct equation</p> <p>eg</p> <ul style="list-style-type: none"> ■ $x = 1$ 	

Tier & Question						Lines on a square (cont)	
3-5	4-6	5-7	6-8				
21	14	6		Correct response		Additional guidance	
	c	c	1m	<p>Indicates No and gives a correct explanation</p> <p>The most common correct explanations:</p> <p>Give a correct equation of the line through E and G</p> <p>eg</p> <ul style="list-style-type: none"> It should be $y = x$ <p>Refer to gradients</p> <p>eg</p> <ul style="list-style-type: none"> Gradient of EG is 1 but the gradient of $y = -x$ is -1 Gradient of EG is positive but the gradient of $y = -x$ is negative EG is the wrong diagonal for a negative gradient <p>Give a counter-example</p> <p>eg</p> <ul style="list-style-type: none"> The point (1, 1) is on the line, but $1 \neq -1$ (1, -1) works for $y = -x$, but is not on the line E is (1, 1), but that's $x = y$ At (1, 1), x and y are equal At (1, 1), x and y have the same sign $\begin{array}{c c c} x & 1 & 2 \\ \hline y & -1 & -2 \end{array}$ these points are not on EG <p>Identify the line with equation $y = -x$</p> <p>eg</p> <ul style="list-style-type: none"> $y = -x$ is the other diagonal through H and F $y = -x$ does not exist in the first quadrant $y = -x$ marked on graph 		<p>✓ <i>Minimally acceptable explanation</i></p> <p>eg</p> <ul style="list-style-type: none"> EG slopes up but $y = -x$ slopes down At E (or G) y is not $-x$ If you put in E's coordinates, it doesn't work <p>✗ <i>Incomplete explanation</i></p> <p>eg</p> <ul style="list-style-type: none"> Gradient of EG is 1 $y = -x$ slopes down $1 \neq -1$ $x = 1, y = 1$ $\begin{array}{c c c c} x & 0 & 1 & 2 & 3 \\ \hline y & 0 & 1 & 2 & 3 \end{array}$ Because each point has the same numbers (1, 1), (2, 2) etc If you put in coordinates, it doesn't work 	

U1

Key Stage 3: 2004 Paper 2 Level 4-6

2.

Tier & Question										Straight lines			
3-5	4-6	5-7	6-8										
	16	10	3			Correct response				Additional guidance			
a	a	a	1m	Completes the table with any three sets of correct coordinates, indicating for each that $x + y = 4$ eg ■ <table border="1" style="margin-left: 20px;"> <tr> <td>(x, y)</td> <td>(0, 4)</td> <td>(1, 3)</td> <td>(2, 2)</td> </tr> <tr> <td>x + y</td> <td>4</td> <td>4</td> <td>4</td> </tr> </table>	(x, y)	(0, 4)	(1, 3)	(2, 2)	x + y	4	4	4	✓ <i>Incomplete processing</i> eg, for (1, 3) • 1 + 3 ! <i>Values for (x, y) correct but some or all of values for x + y omitted</i> Accept provided a correct equation is given in part (b)
(x, y)	(0, 4)	(1, 3)	(2, 2)										
x + y	4	4	4										
b	b	b	1m	Gives a correct equation eg ■ $x + y = 4$ ■ $y = 4 - x$ ■ $x = -y + 4$									
c	c	c	1m	Draws the correct straight line through (0, 6) and (6, 0)	! <i>Line not ruled or accurate</i> Accept provided the pupil's intention is clear ! <i>Partial line drawn</i> Do not accept lines that are less than 5cm in length ! <i>Points plotted</i> ignore ✗ <i>Points not joined</i>								

Key Stage 3: 2005 Paper 1 Level 4-6

3.

Tier & Question				3-5	4-6	5-7	6-8		Refer to the new algebra general guidance	Straight line graph	
24	17	9	Correct response							Additional guidance	
a	a	a	Im	Indicates that the y -coordinate is 146				✓ <i>Indication is within a pair of correct coordinates</i> eg, for part (a) <ul style="list-style-type: none"> • (50, 146) eg, for part (b) <ul style="list-style-type: none"> • (18, 50) ! <i>Answers to parts (a) and (b) transposed but otherwise correct</i> Mark as 0, 1			
b	b	b	Im	Indicates that the x -coordinate is 18							
	c	c	Im	Indicates Yes and gives a correct explanation with no evidence of incorrect working eg <ul style="list-style-type: none"> ■ When $x = -10$, $y = 3 \times -10 - 4$ $= -30 - 4$ $= -34$ ■ $3x - 4 = -34$ $3x = -30$ $x = -10$ 				✓ <i>Minimally acceptable explanation</i> eg <ul style="list-style-type: none"> • $-30 - 4 = -34$ • $-30 \div 3 = -10$ • When $x = -10$, $3x - 4 = -34$ • The second number is equal to the first number multiplied by 3, minus 4 ✗ <i>Incomplete or incorrect explanation</i> eg <ul style="list-style-type: none"> • When $x = -10$, $y = -34$ • $3x - 4 = -34$ $3x = -34 - 4$ $3x = -30$ $x = -10$ 			