

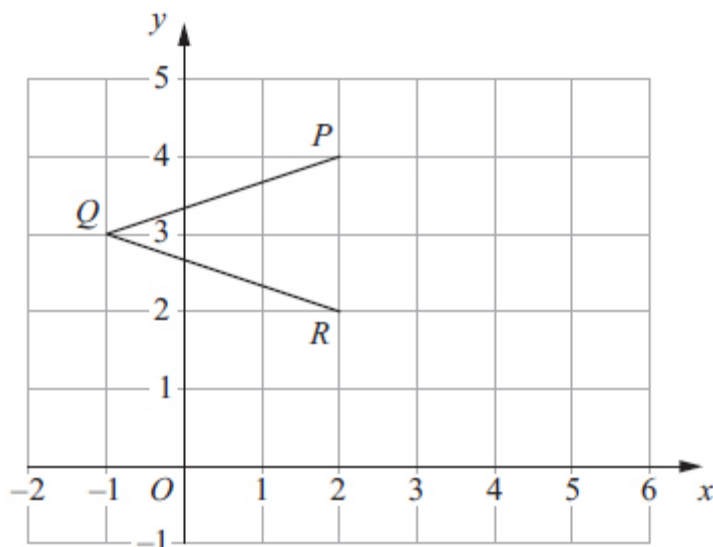


## Unit 1 Revision Sheet C Graphs Foundation

### Questions

Q1.

The diagram shows three points  $P$ ,  $Q$  and  $R$  on a 1 cm grid.



(a) Write down the coordinates of  $P$ .

(....., .....)  
(1)

(b) Write down the coordinates of  $Q$ .

(....., .....)  
(1)

(c) On the grid, mark the point  $S$  so that  $PQRS$  is a rhombus.

(1)

(d) Work out the area of the rhombus  $PQRS$ .

.....  $\text{cm}^2$   
(2)

(e) Write down the equation of the line  $PR$ .

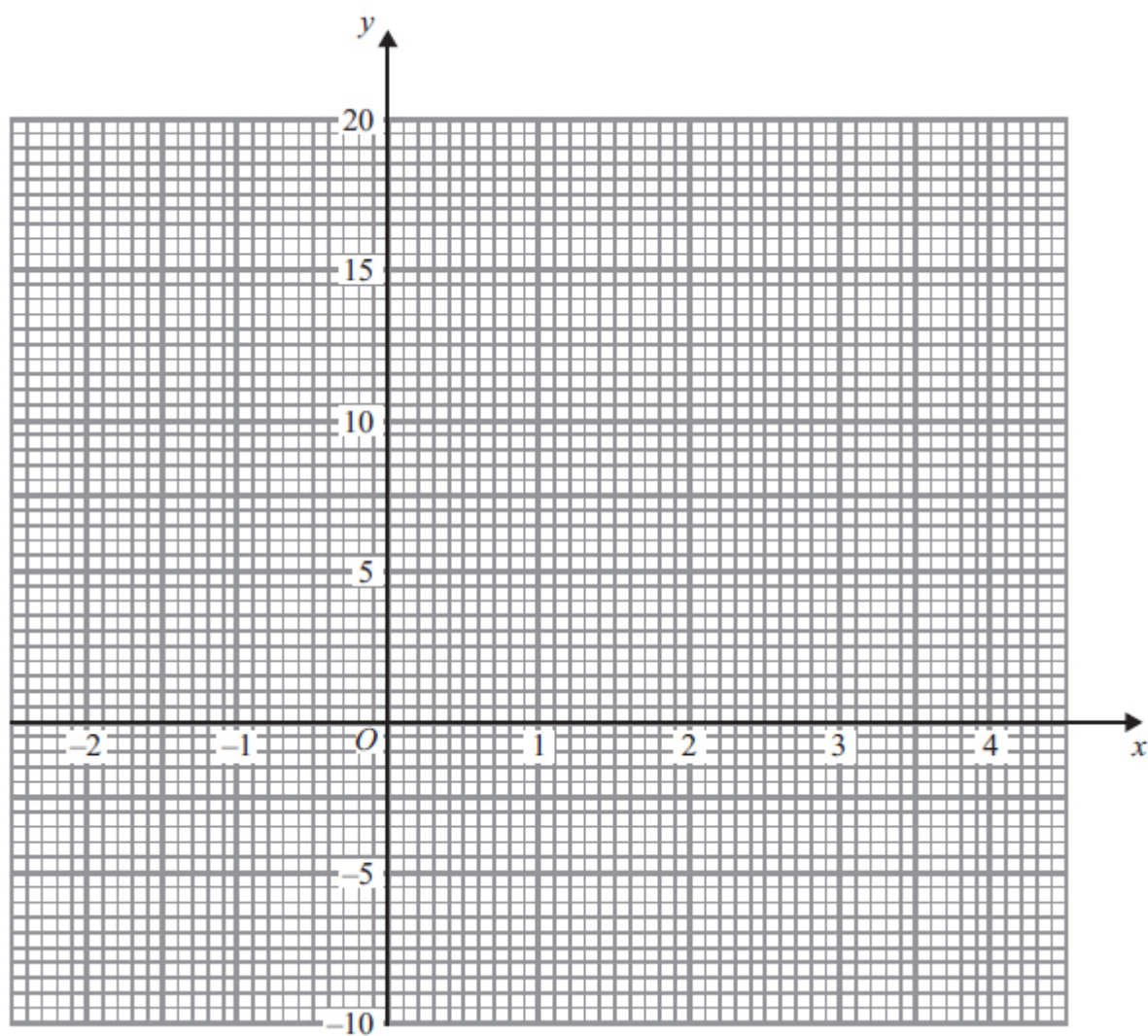
.....  
(1)

(Total for question = 6 marks)



**Q2.**

On the grid, draw the graph of  $y = 4x - 1$  from  $x = -2$  to  $x = 4$

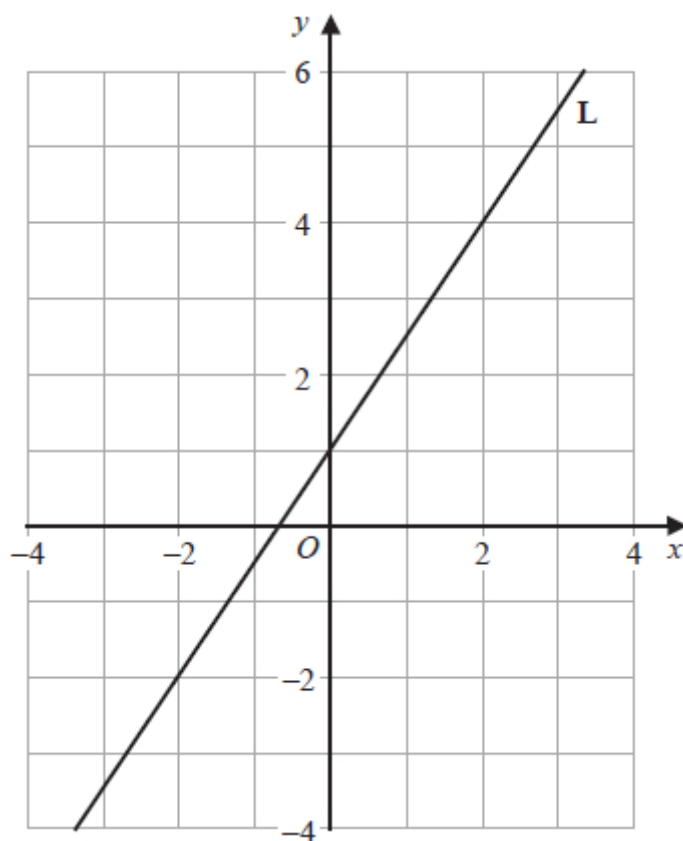


(Total for question is 4 marks)



**Q3.**

The line **L** is drawn on the grid.



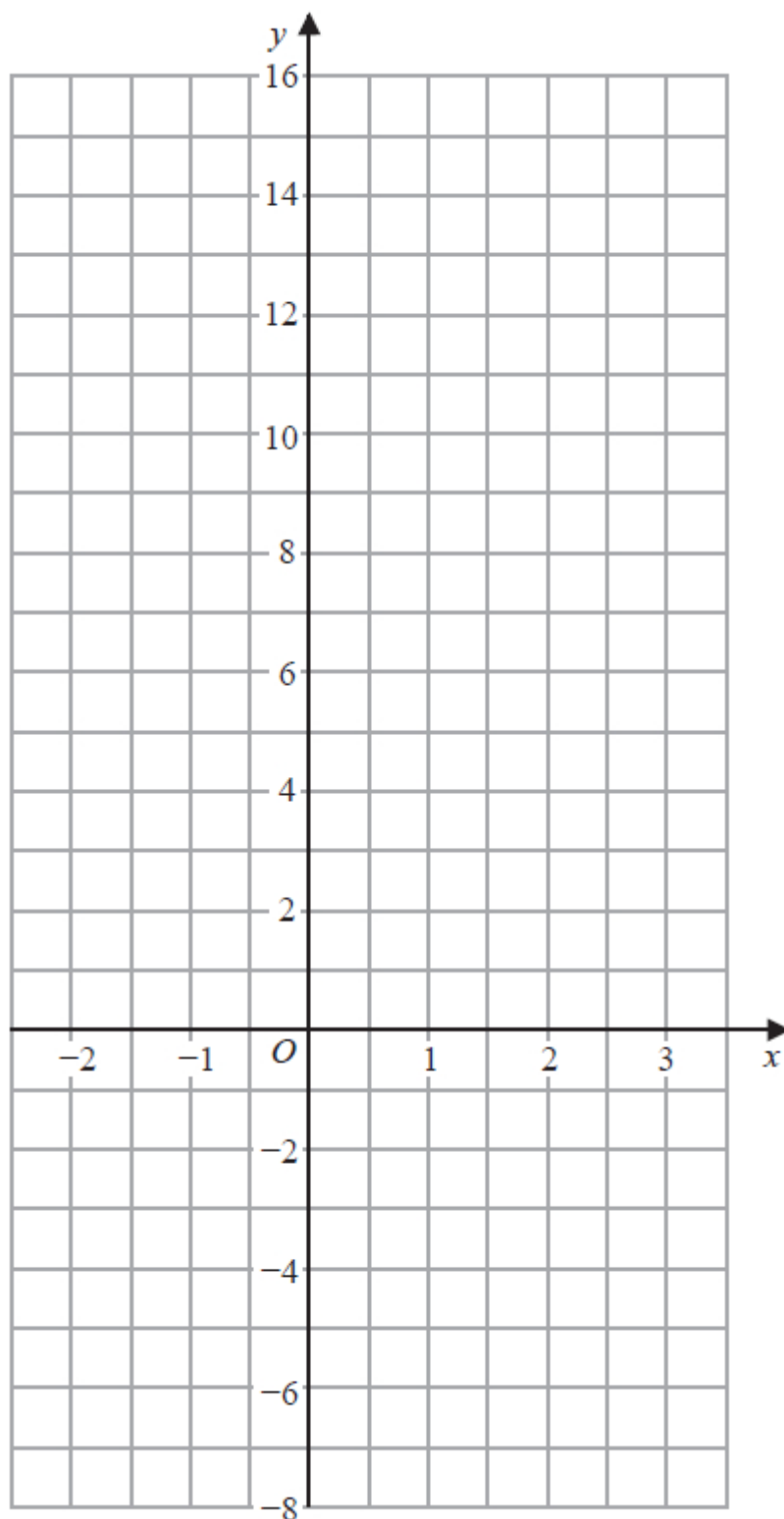
Find an equation for **L**.

**(Total for question = 3 marks)**



**Q4.**

On the grid, draw the graph of  $y = 7 - 4x$  for values of  $x$  from  $-2$  to  $3$

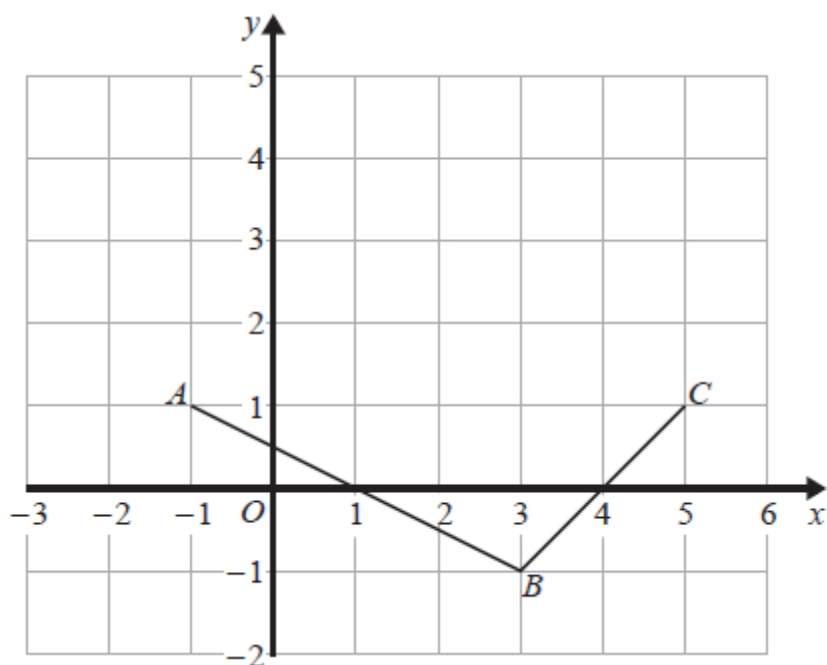


**(Total for question = 3 marks)**



**Q5.**

The diagram shows the straight lines  $AB$  and  $BC$  drawn on a centimetre grid.



(a) Write down the coordinates of

(i)  $C$

( ..... , ..... )

(ii)  $B$

( ..... , ..... )

(2)

(b) On the grid, mark the point  $D$  so that  $ABCD$  is a kite.

(1)

(c) Work out the gradient of  $AB$ .

.....

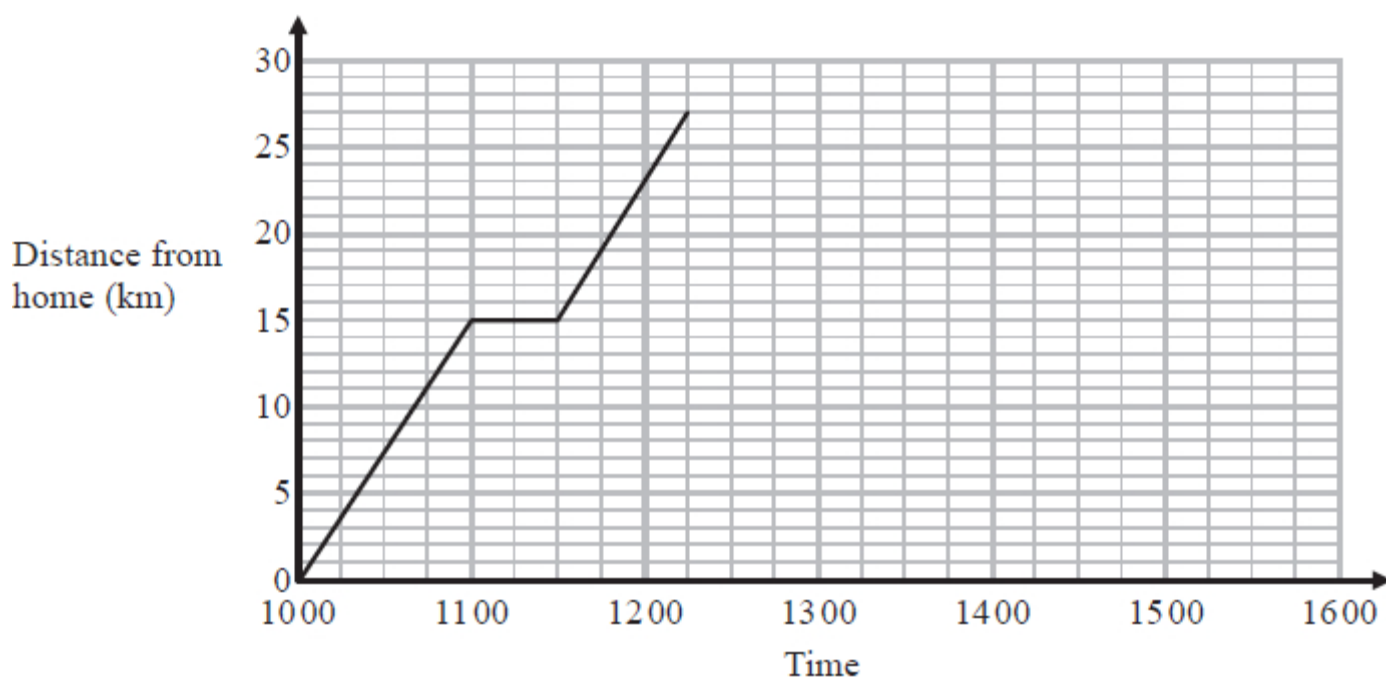
(2)

**(Total for question = 5 marks)**



**Q6.**

Kevin left his home at 1000 to cycle to a lake.  
On the way, he stopped at a friend's house and then continued his journey to the lake.  
Here is the distance-time graph for his journey to the lake.



(a) For how many minutes did Kevin stop at his friend's house?

..... minutes  
(1)

(b) How far is the lake from Kevin's home?

..... km  
(1)



Kevin stayed at the lake until 1315.  
He then cycled, without stopping, at a constant speed from the lake back to his home.

It took Kevin  $1\frac{1}{4}$  hours to cycle home.

- (c) (i) Show all this information on the graph.  
(ii) Work out Kevin's speed as he cycled from the lake back to his home.

..... km/h

(4)

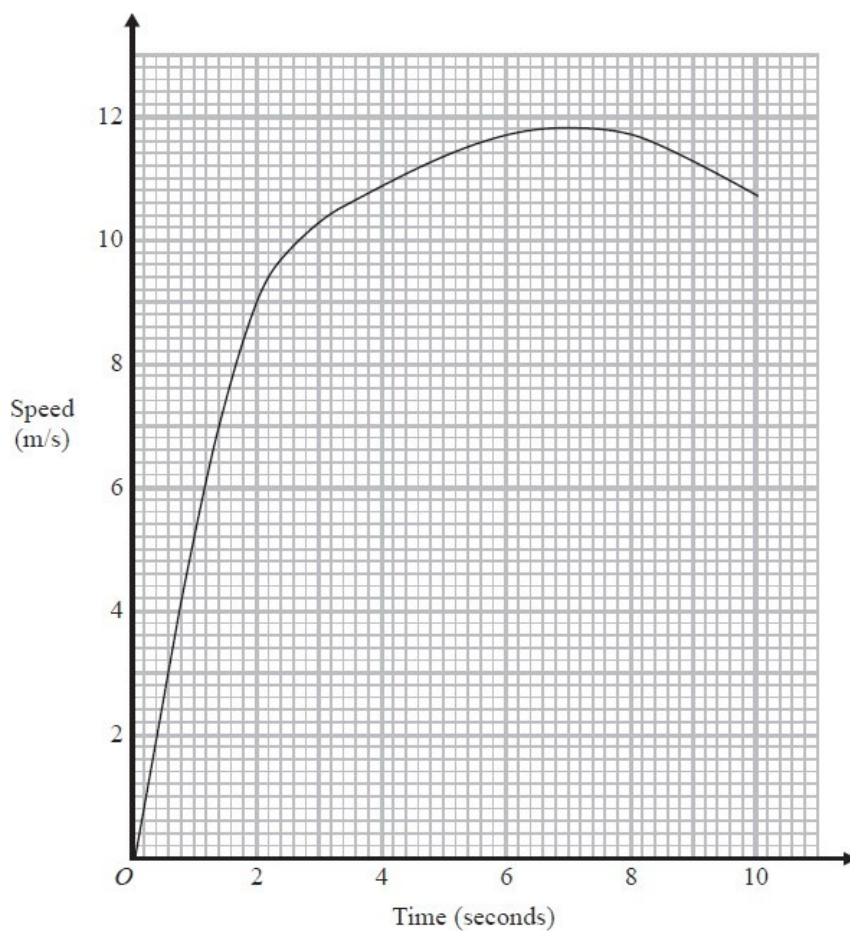
**(Total for question = 6 marks)**



**Q7.**

Usain runs in a race.

The graph shows his speed, in metres per second (m/s), during the first 10 seconds of the race.



(a) Write down Usain's speed at 2 seconds.

..... m/s  
(1)

(b) Write down Usain's greatest speed.

..... m/s  
(1)

(c) Write down the time at which Usain's speed was 7 m/s.

..... seconds  
(1)

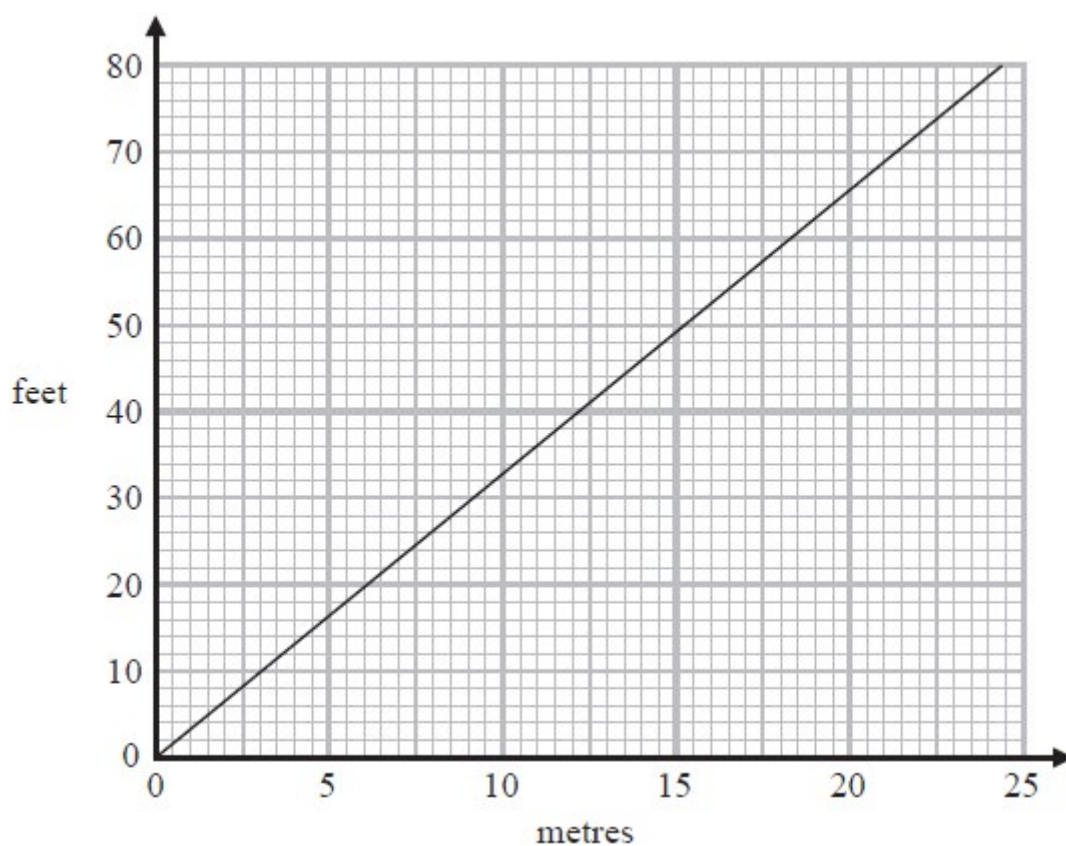
**(Total for Question is 3 marks)**





**Q8.**

Below is a conversion graph to change between metres and feet.



(a) Use the graph to change

(i) 10 metres to feet,

..... feet

(ii) 50 feet to metres.

..... metres

(2)

Joss lives 820 metres above sea level.

Nicky lives 2850 feet above sea level.

(b) Which is the greater, 820 metres or 2850 feet?

You must show how you get your answer.

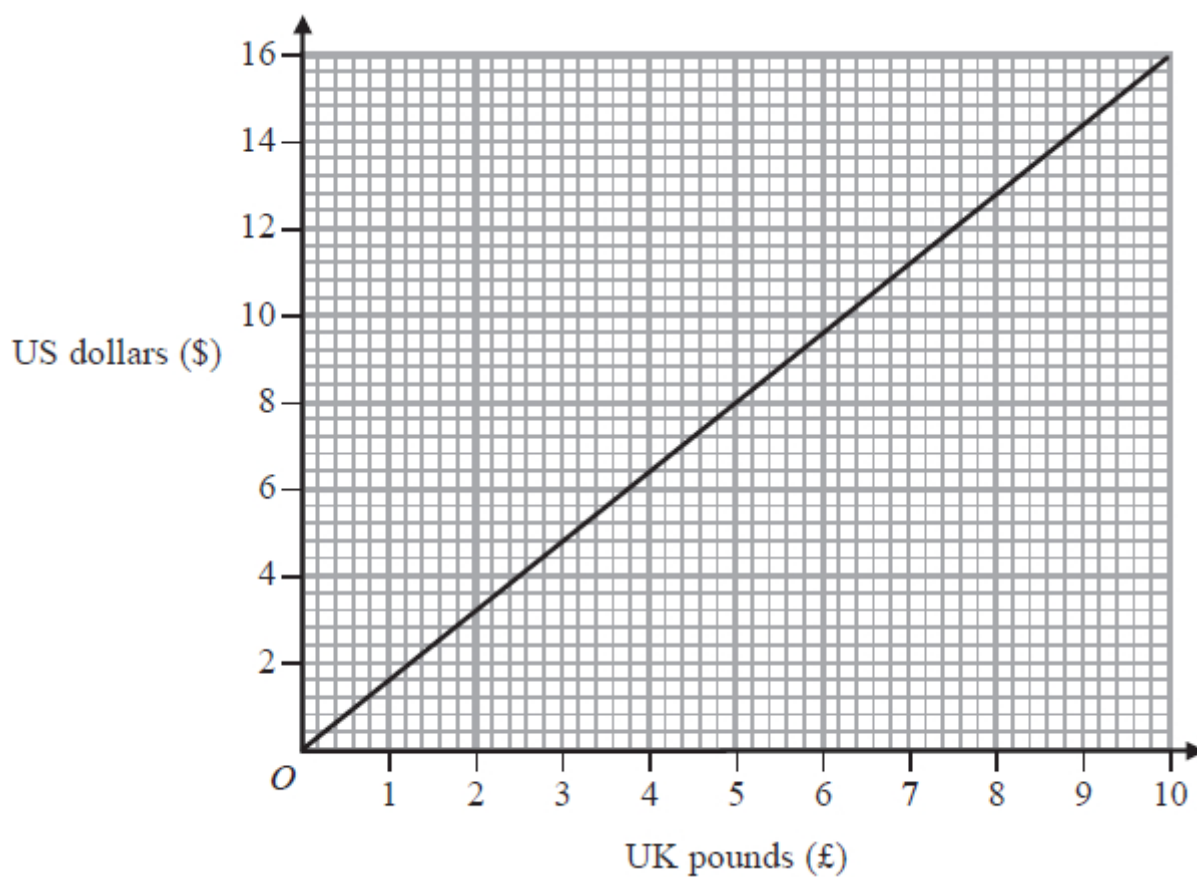
(2)

**(Total for question = 4 marks)**



**Q9.**

You can use this graph to change between UK pounds (£) and US dollars (\$).



(a) Use the graph to change £5 to US dollars.

\$.....  
(1)

(b) Use the graph to change \$14 to UK pounds.

£.....  
(1)

(c) Change £37.50 to US dollars.

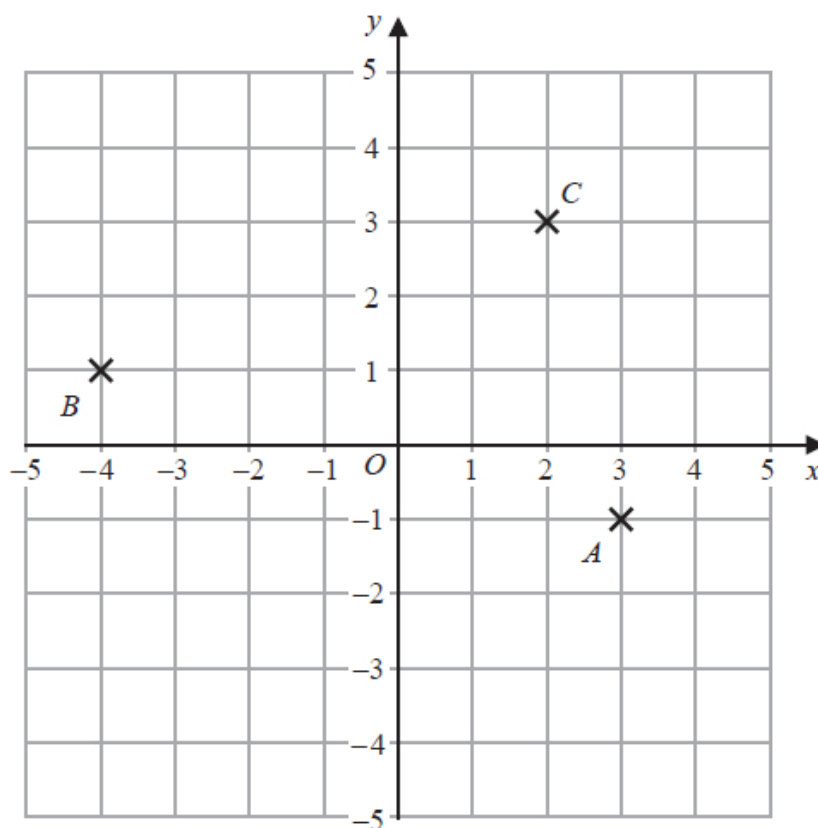
\$.....  
(2)

**(Total for question = 4 marks)**



**Q10.**

The diagram shows three points,  $A$ ,  $B$  and  $C$ , marked on a grid.



(a) Write down the coordinates of point  $A$ .

( ..... , ..... )

(1)

The coordinates of the point  $D$  are  $(-2, -4)$

(b) On the grid, mark with a cross (✕) the position of  $D$ .

Label the cross  $D$ .

(1)

(c) Find the coordinates of the midpoint of  $BC$ .

( ..... , ..... )

(2)

(d) On the grid, draw the line with equation  $x = 4$

(1)

**(Total for question = 5 marks)**



**Q11.**

The point  $A$  has coordinates  $(5, -4)$

The point  $B$  has coordinates  $(13, 1)$

(a) Work out the coordinates of the midpoint of  $AB$ .

( ..... , ..... )

(2)

Line  $L$  has equation  $y = 2 - 3x$

(b) Write down the gradient of line  $L$ .

.....

(1)

Line  $L$  has equation  $y = 2 - 3x$

(c) Does the point with coordinates  $(100, -302)$  lie on line  $L$ ?

You must give a reason for your answer.

.....

.....

.....

(1)

**(Total for question = 4 marks)**



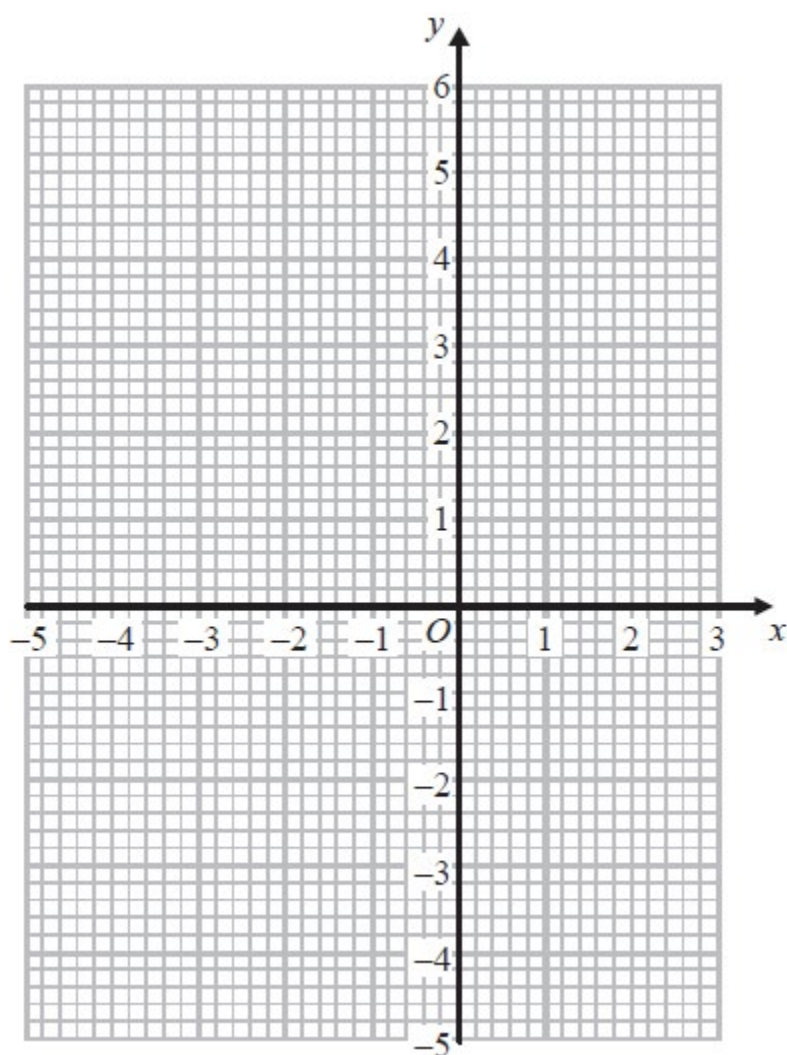
**Q12.**

(a) Complete the table of values for  $y = x^2 + 2x - 3$

$x$	-4	-3	-2	-1	0	1	2
$y$		0	-3	-4			5

(2)

(b) On the grid, draw the graph of  $y = x^2 + 2x - 3$  for values of  $x$  from -4 to 2



(2)

**(Total for Question is 4 marks)**



**Q13.**

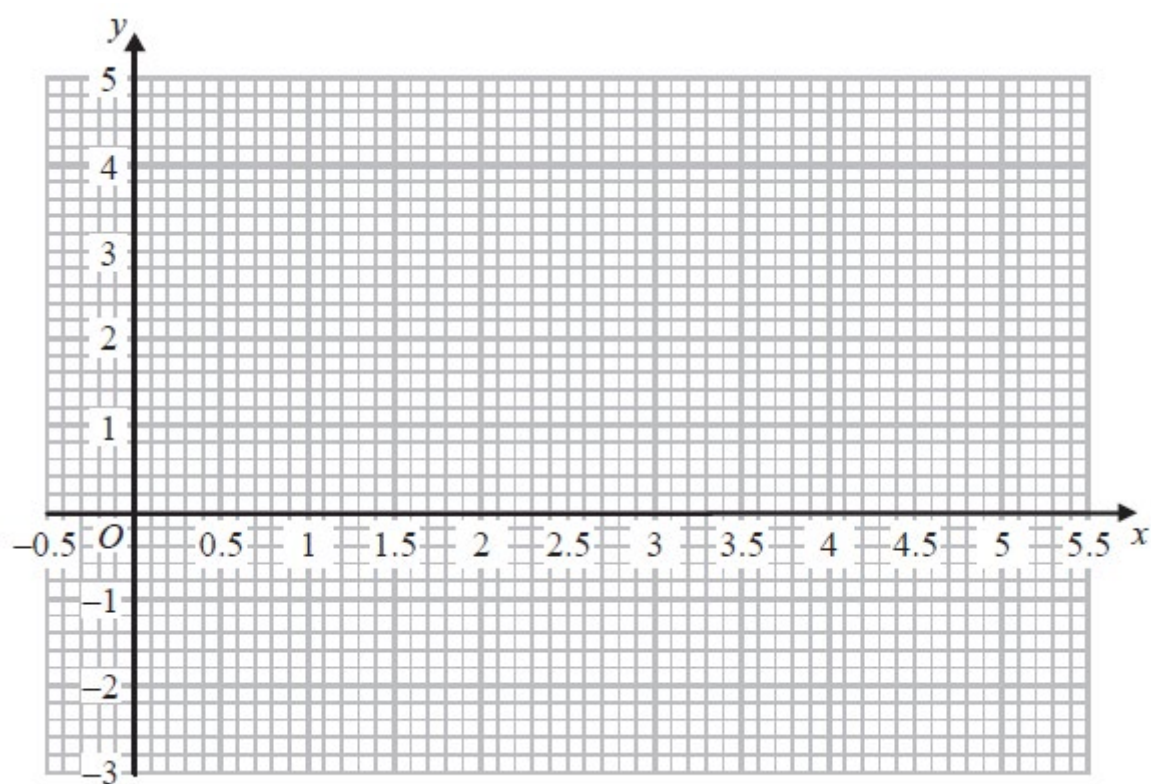
(a) Complete the table of values for  $y = x^2 - 5x + 4$

$x$	0	1	2	3	4	5
$y$			-2			4

(2)

(b) On the grid, draw the graph of  $y = x^2 - 5x + 4$  for all values of  $x$  from  $x = 0$  to  $x = 5$

(2)

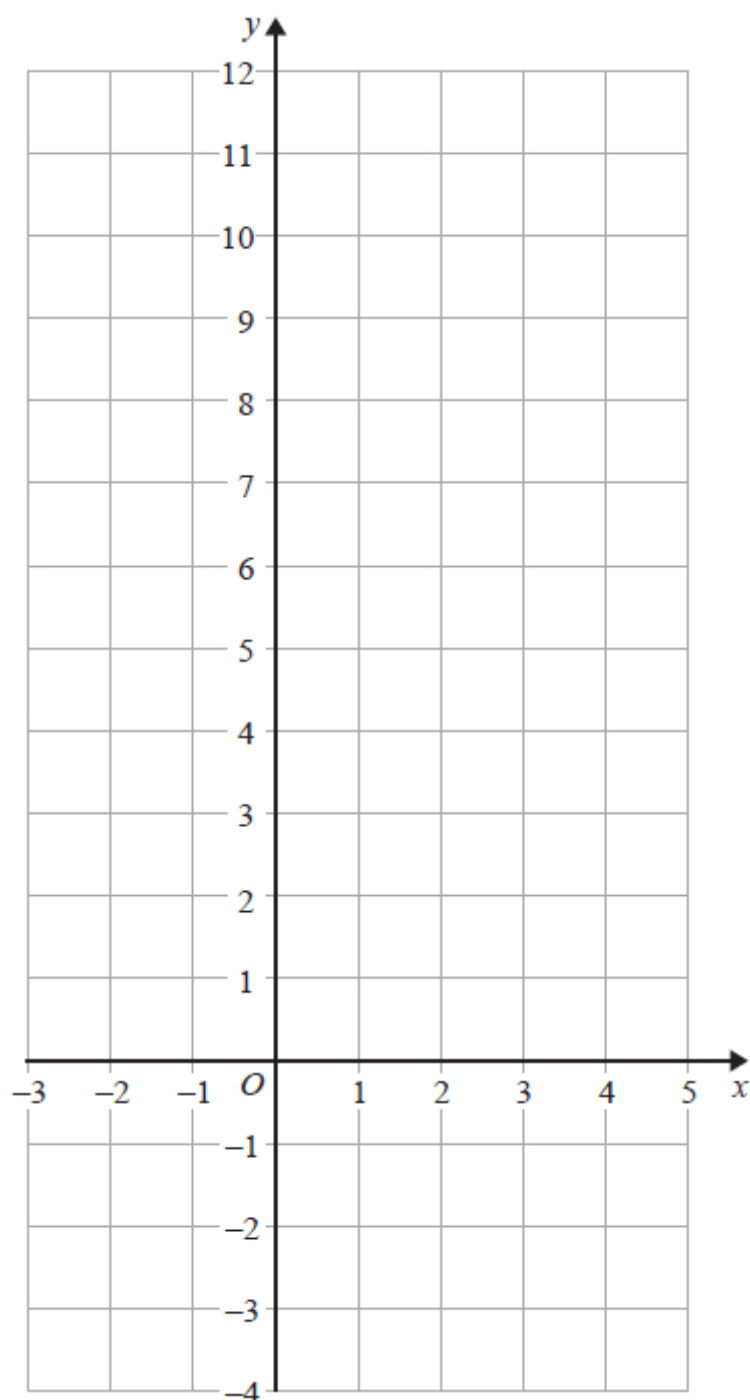


**(Total for Question is 4 marks)**



**Q14.**

On the grid, draw the graph of  $y + 2x = 6$  for values of  $x$  from  $-2$  to  $4$



**(Total for question = 4 marks)**



## Mark Scheme

Q1.

Question number	Working	Answer	Mark	Notes
(a)		(2, 4)	1	B1 cao
(b)		(-1, 3)	1	B1 cao
(c)		S plotted at 5, 3	1	B1 Accept X in place of S or rhombus in correct position
(d)	2 x 3 oe	6	2	M1 A1 SC B1 for 5 to 7 inclusive (but not 6) or 8
(e)		$x = 2$ oe	1	B1
				<b>Total 6 marks</b>

Q2.

Question	Working	Answer	Mark	Notes
	One correct point plotted or stated		4	B1 May appear in table
	2nd correct point plotted or stated			B1 May appear in table
	Correct line between $x = -2$ and $x = 4$			B2 B1 for a line joining two correct, plotted points
				Total 4 marks





Q3.

Question	Working	Answer	Mark	Notes
	$3 \div 2 (=1.5)$ or eg $\frac{4-1}{2(-0)}$ or $c = 1$  $y = "1.5"x + c$ or $y = mx + 1$ or eg $y - 4 = m(x - 2)$	$y = 1.5x + 1$ oe	3	M1 for correct method to find gradient or the correct value of $c$ . For gradient, may see a correct calculation, $3/2$ with evidence on diagram oe or $1.5x (+ c)$ For value of $c$ , allow $c = 1, y = 1, (L =) mx + 1$ oe  M1 for use of $y = mx + c$ with either $m$ or $c$ or for $(L =) 1.5x + 1$ (NB: $m \neq 0$ )  A1 oe eg $y - 4 = \frac{3}{2}(x - 2)$

Q4.

Q	Working	Answer	Mark	Notes											
	<table><tr><td>x</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td></tr><tr><td>y</td><td>15</td><td>11</td><td>7</td><td>3</td><td>-1</td><td>-5</td></tr></table>   <	x	-2	-1	0	1	2	3	y	15	11	7	3	-1	-5
x	-2	-1	0	1	2	3									
y	15	11	7	3	-1	-5									



**Q5.**

Question	Working	Answer	Mark	Notes
(a) (i)		(5, 1)	1	B1
(ii)		(3, -1)	1	B1
(b)		$D(3, 3)$ marked	1	B1 Condone omission of $D$ if unambiguous.
(c)			2	M1 For $\frac{2}{4}$ or $\frac{1}{2}$ oe or a clear attempt to work out $\frac{\text{distance up}}{\text{distance along}}$ for $AB$  (condone omission of negative sign)
		$-\frac{1}{2}$		A1 oe
				<b>Total 5 marks</b>

**Q6.**

Q	Working	Answer	Mark	Notes
a		30	1	B1
b		27	1	B1
ci		line from (1215, 27) to (1315, 27) and from (1315, 27) to (1430, 0)	2	B2 If not B2 then B1 for line from (1215, 27) to (1315, 27) or line from (1215 + x, 27) to (1330 + x, 0) x may be 0
cii	"27" $\div$ 1.25 or $\frac{27}{75} \times 60$		2	M1 Use of distance $\div$ time -ft from (b); accept $27 \div 1.15$ oe
		21.6		A1
				<b>Total 6 marks</b>



Q7.

Question	Working	Answer	Mark	Notes
(a)		9 to 9.1	1	B1
(b)		11.8	1	B1
(c)		1.4	1	B1
Total 3 marks				

Q8.

Q	Working	Answer	Mark	Notes
a i		33	1	B1 accept 32 – 34
ii		15	1	B1 accept 15 – 16
b	e.g. $820 \div 10 \times "33"$ (= 2706) or $2850 \div 50 \times "15"$ (= 855)		2	M1 method to convert 820 metres to feet or 2850 feet to metres, allow ft from (ai) or (aia) or a value for 820 m to feet in range (2620 – 2740) or a value for 2850 feet to m in range (830 – 900)
		2850 feet supported by working		A1 2850 selected (could be unambiguously circled, underlined or stated) with correct working and figures as above to justify result, ft from part (ai) or (aia)
Total 4 marks				

Q9.

Question	Working	Answer	Mark	Notes
(a)		8	1	B1 cao
(b)		8.8(0)	1	B1 Accept 8.7(0)-8.9(0) inclusive
(c)	$'8' \times \frac{37.5}{5}$ or $\frac{8'}{5} \times 37.5$ oe	60	2	M1 ft their answer in (a) or a completely correct method.  A1 ft $(7.5 \times (a))$ or 55 – 65 from a completely correct method seen.
Total 4 marks				



Q10.

Q	Working	Answer	Mark	Notes
a		$(3, -1)$	1	B1
b		$(\times)$ at $(-2, -4)$	1	B1 condone missing label as long on unambiguous
c		$(-1, 2)$	2	B2 B1 for $(-1, a)$ where $a \neq 2$ or $(b, 2)$ where $b \neq -1$
d		$x = 4$ drawn	1	B1
Total 5 marks				

Q11.

Question	Working	Answer	Mark	Notes
(a)	$\frac{5+13}{2}$ or $\frac{-4+1}{2}$		2	M1 for a correct method to find one coordinate or for one coordinate correct or for $(-1.5, 9)$
		$(9, -1.5)$		A1 Accept $(9, -\frac{3}{2})$
(b)		-3	1	B1
(c)		No with reason	1	B1 No (oe) and e.g. line goes through $(100, -298)$ or $(101.3..), -302)$ or $(\frac{304}{3}, -302)$ or $(3 \times 100) - 302 = -2$ not (+)2
Total 4 marks				

Q12.

Question	Working	Answer	Mark	Notes
(a)		5, 0, -3, -4, -3, 0, 5	2	B2 B1 for at least 2 correct
(b)		correct graph	2	B2 B1 ft for all points from table plotted correctly provided at least B1 scored in (a)
Total 4 marks				



Q13.

Question	Working	Answer	Mark	Notes
(a)		4, 0, (-2), -2, 0, (4)	2	B2 Award B1 for any 2 correct.
(b)	(0, 4), (1, 0), (2, -2), (3, -2), (4, 0), (5, 4)		2	M1 Plot points correctly (half square tolerance). ft their table
		correct curve		A1 Correct curve through correct points. Do not allow straight lines joining points.
Total 4 marks				

Q14.

Question	Working	Answer	Mark	Notes																
	<table><tr><td>x</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>y</td><td>10</td><td>8</td><td>6</td><td>4</td><td>2</td><td>0</td><td>-2</td></tr></table>	x	-2	-1	0	1	2	3	4	y	10	8	6	4	2	0	-2	$y = 6 - 2x$ drawn from $x = -2$ to $x = 4$	4	B4 For a correct line between $x = -2$ and $x = 4$
x	-2	-1	0	1	2	3	4													
y	10	8	6	4	2	0	-2													
				B3 For a correct straight line segment through at least 3 of $(-2, 10)$ $(-1, 8)$ $(0, 6)$ $(1, 4)$ $(2, 2)$ $(3, 0)$ $(4, -2)$  OR for all of $(-2, 10)$ $(-1, 8)$ $(0, 6)$ $(1, 4)$ $(2, 2)$ $(3, 0)$ $(4, -2)$ plotted but not joined																
				B2 For at least 2 correct points plotted																
				B1 For at least 2 correct points stated (may be in a table) OR  for a line drawn with a negative gradient through $(0, 6)$ OR a line with gradient $-2$																
				Total 4 marks																