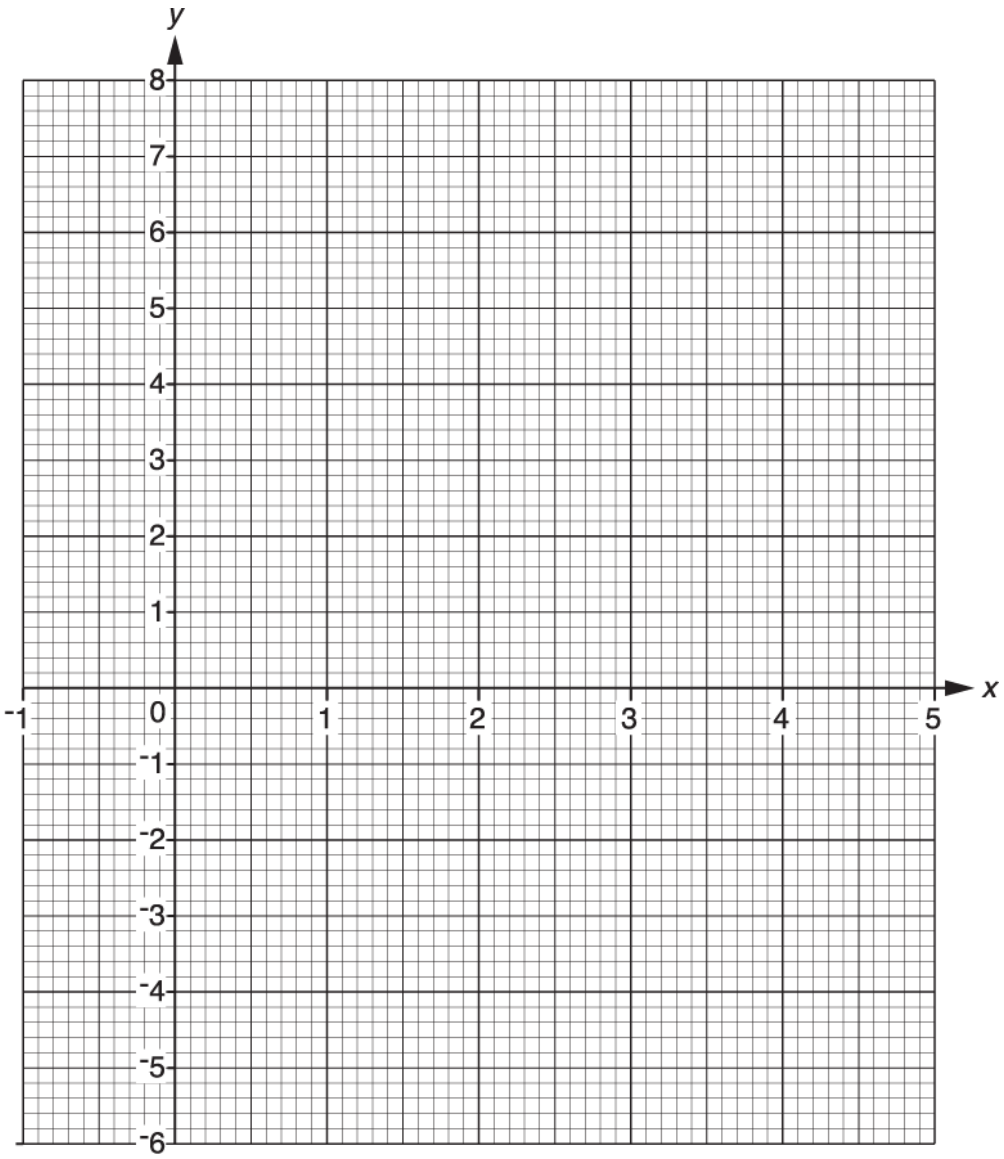
1(a). Complete the table for $y = x^2 - 4x$.

x	−1	0	1	2	3	4	5
y		0	−3	−4	−3	0	

[2]

(b). Draw the graph of $y = x^2 - 4x$ for values of x from −1 to 5.



[2]

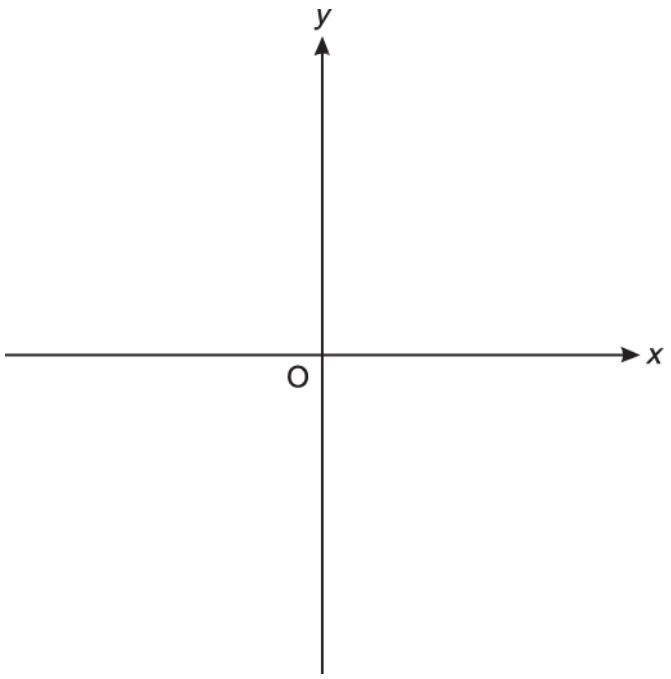
(c). Use your graph to solve the equation $x^2 - 4x = 3$.

$x =$ _____ or $x =$ _____

[2]

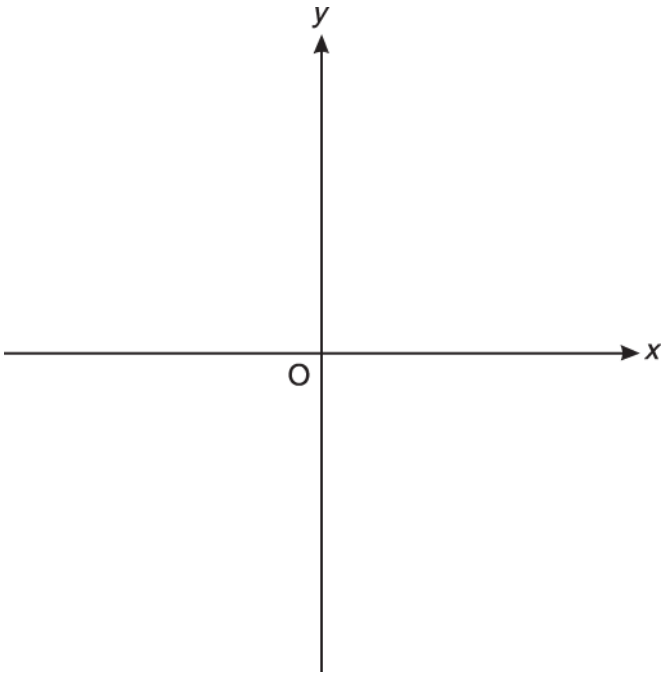
2.

(i) Sketch a graph on the axes below that shows that y is directly proportional to x.



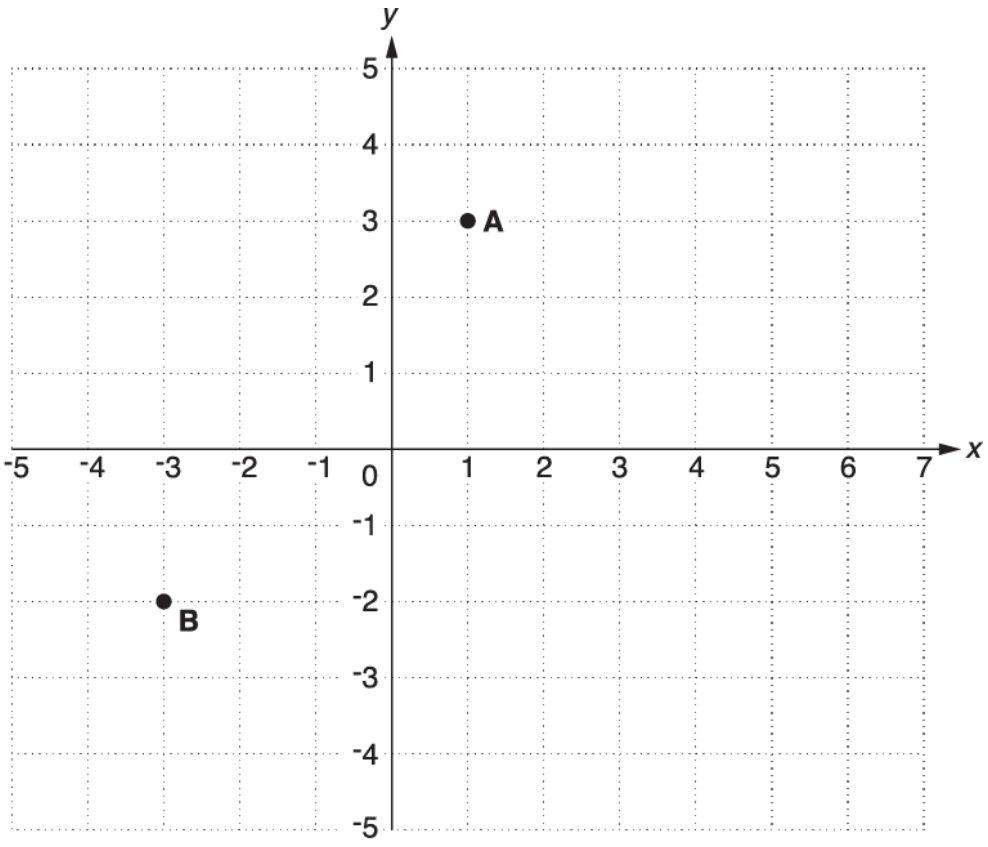
[2]

(ii) Sketch a graph on the axes below that shows $y = x^3$.



[2]

3(a). Points **A** and **B** are marked on this grid.



Write down the coordinates of point **A**.

(_____, _____)

[1]

(b). Plot point **C** at (5, −2).

[1]

(c). What type of triangle is **ABC**?

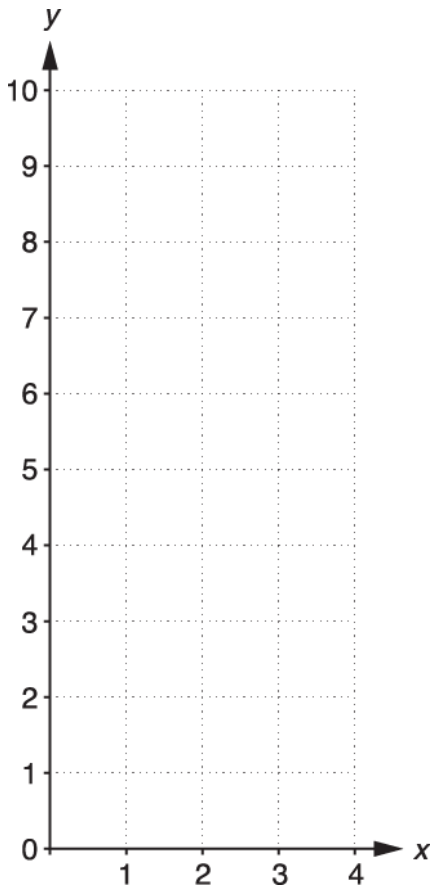
_____ [1]

4(a). Complete this table for $y = 2x + 1$.

x	0	1	2	3	4
y		3		7	

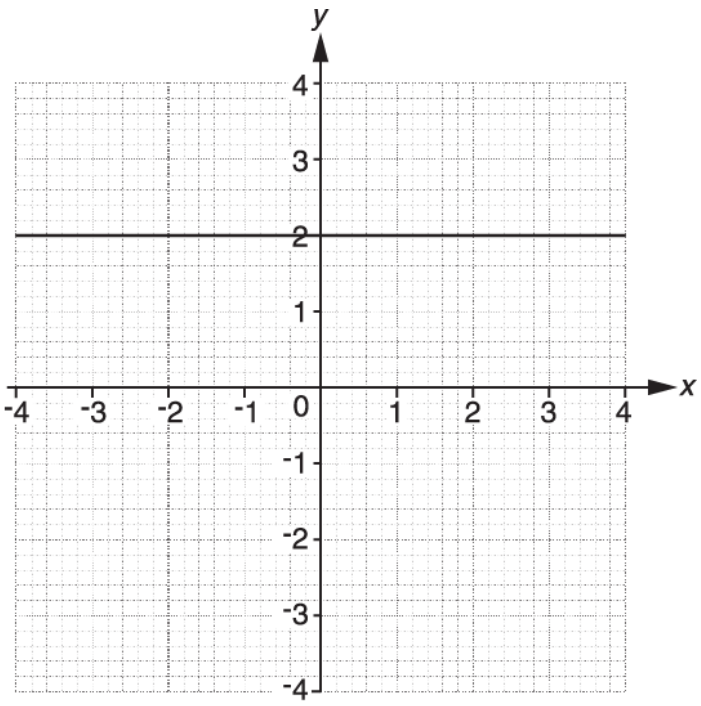
[2]

(b). Use the table above to draw the graph of $y = 2x + 1$.



[2]

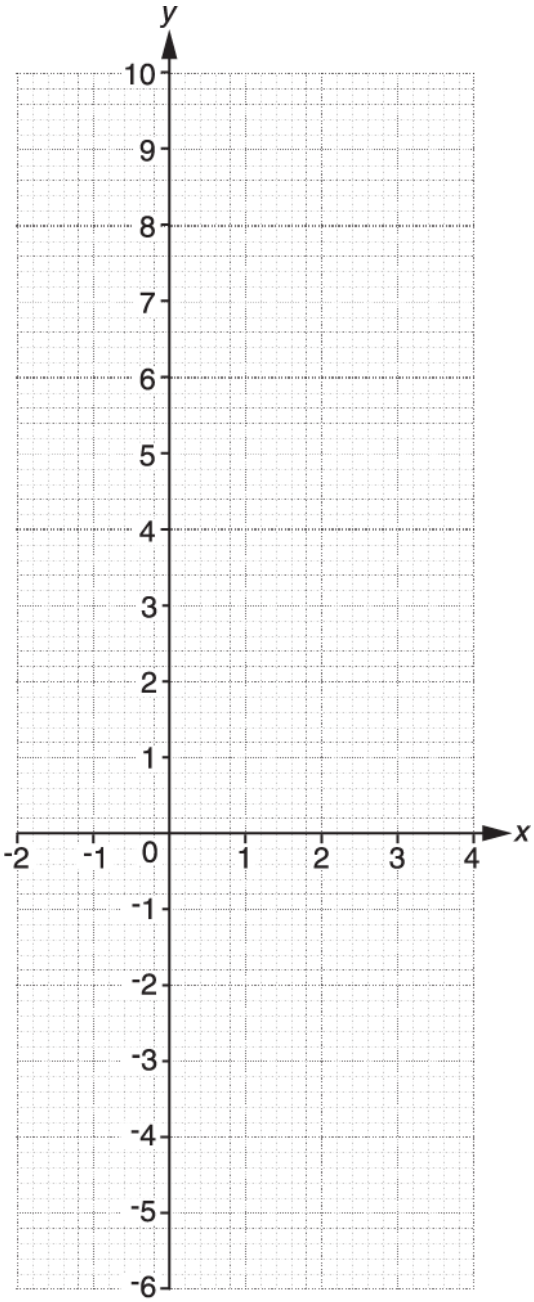
5(a). A straight line is drawn on the grid.



Write down the equation of this line.

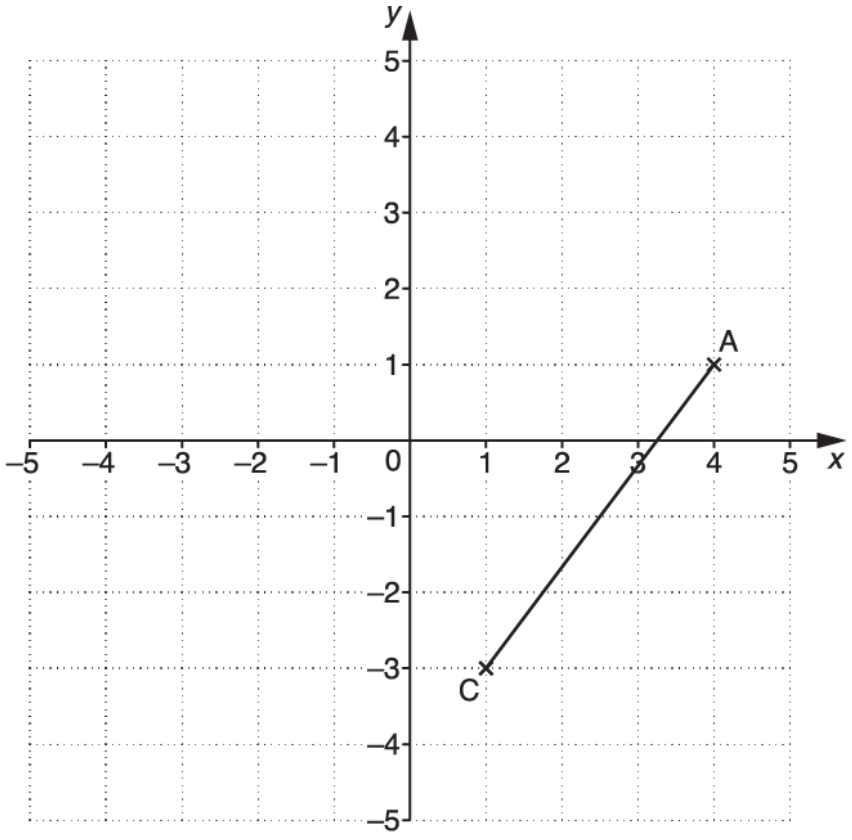
_____ [1]

(b). On the grid below, draw the line $y = 2x - 1$ for values of x from -2 to 4.



[3]

6(a). Here is a coordinate grid.



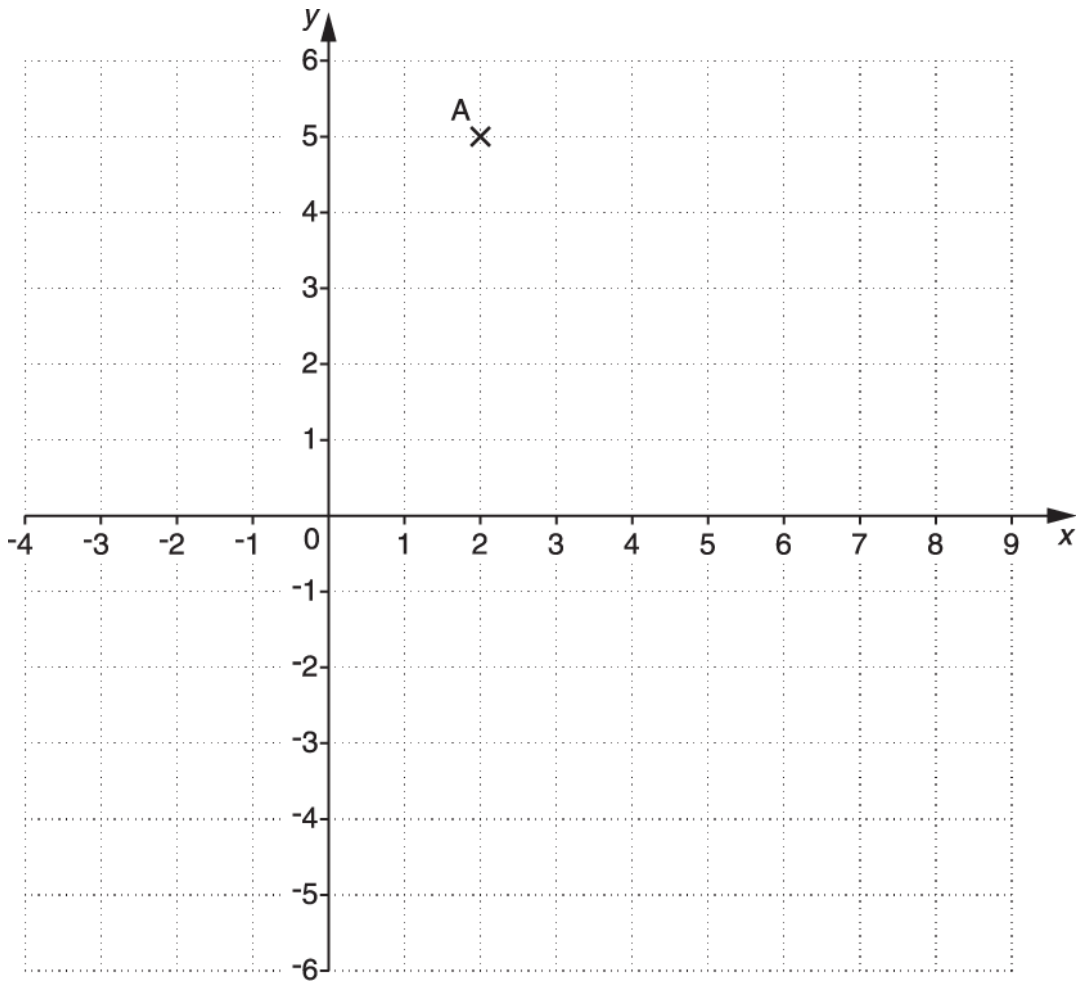
Write down the coordinates of point A.

(_____, _____) **[1]**

(b). Plot the point (–3, –4). Label it B.

[1]

7. Point A is plotted on the grid.



(i) Write down the coordinates of A.

(i) (_____ , _____) [1]

(ii) Plot the point (2, –5).
Label it C.

[1]

(iii) AC is a diagonal of the square ABCD.

Write down the coordinates of one other vertex of the square.

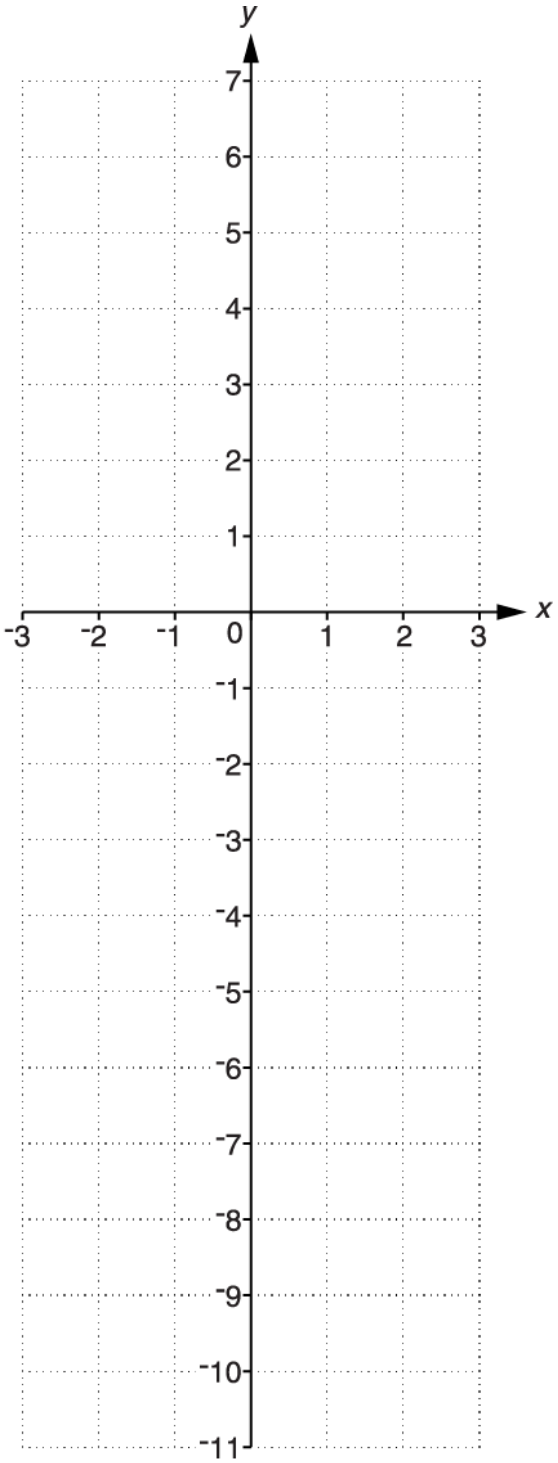
(iii) (_____ , _____) **[2]**

8(a). Complete this table for $y = 4x - 2$.

x	$^{-}2$	$^{-}1$	0	1	2
y		$^{-}6$	$^{-}2$		6

[2]

(b). Draw the graph of $y = 4x - 2$.



[2]

(c). Use your graph to find the value of x when $y = 4$.

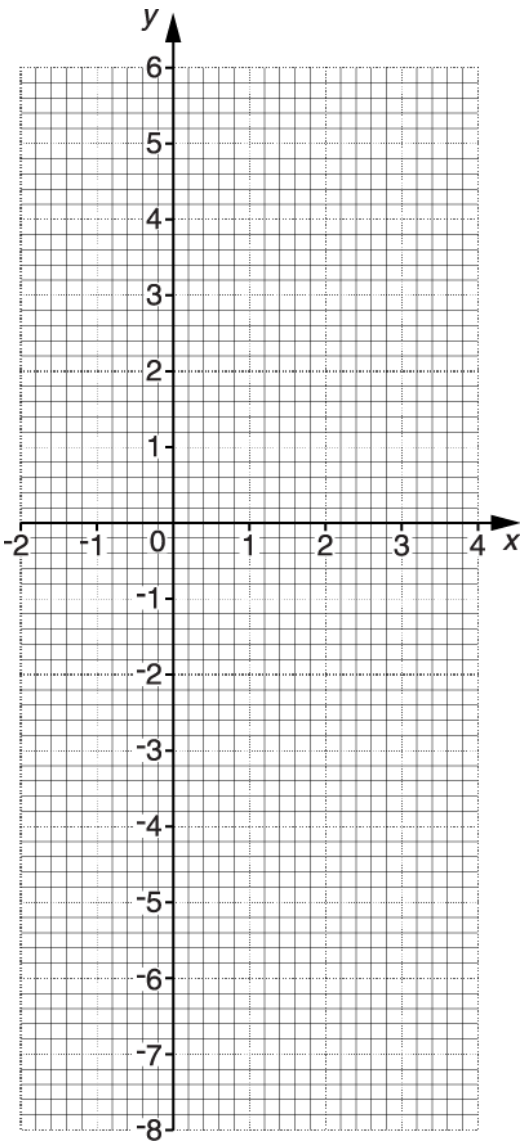
$x =$ _____ [1]

9(a). Complete this table for $y = 2x - 3$.

x	–2	–1	0	1	2	3	4
y	–7	–5		–1			5

[1]

(b). Draw the graph of $y = 2x - 3$ for values of x from –2 to 4.



[2]

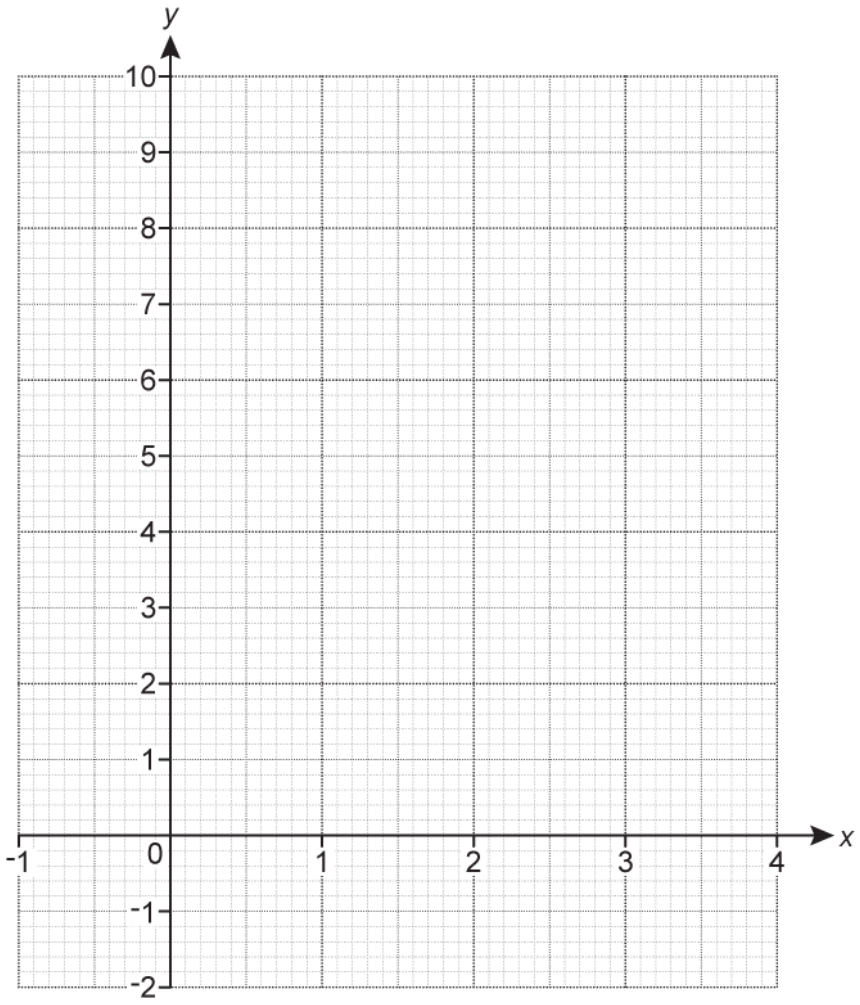
10(a)

. Complete the table for $y = x^2 - 2x$.

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

[1]

(b). Draw the graph of $y = x^2 - 2x$ for $-1 \leq x \leq 4$.



[2]

(c). Use your graph to solve $x^2 - 2x = 2$.

_____ [2]

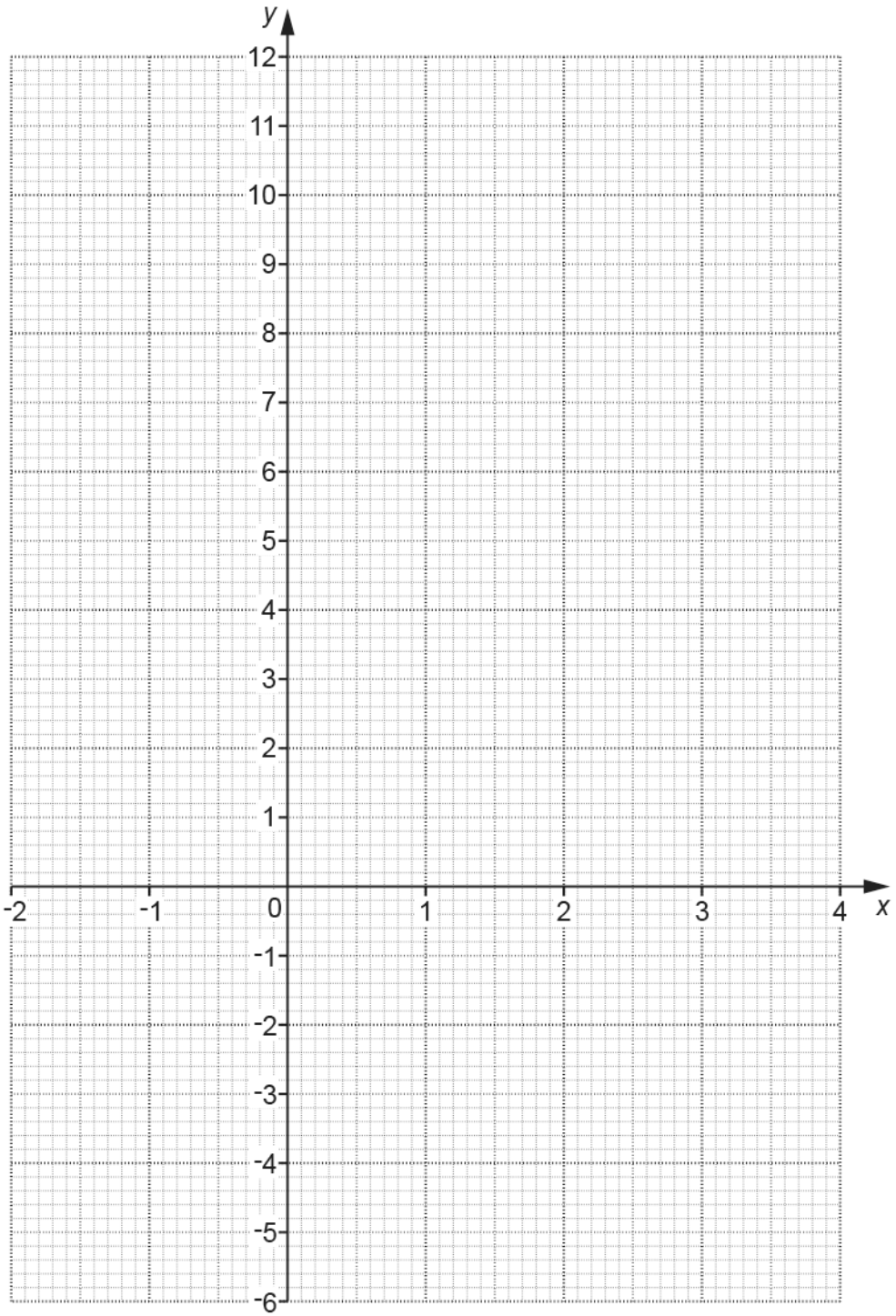
11(a)

. Complete this table for $y = x^2 - 5$.

x	–2	–1	0	1	2	3	4
y		–4	–5	–4			11

[2]

(b). On the grid below, draw the graph of $y = x^2 - 5$ for the values of x from –2 to 4.



[2]

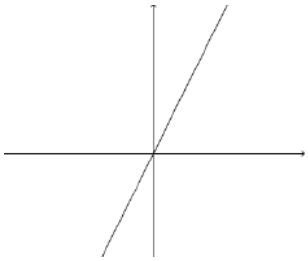
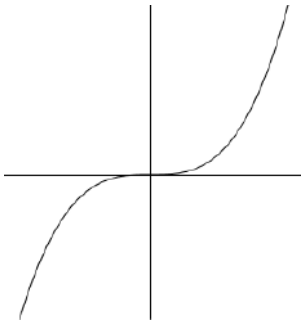
(c). On the same grid, draw the line $y = -2$. [1]

(d). Write down the x coordinates of the points where $y = x^2 - 5$ and $y = -2$ cross.

$x =$ ---------- and $x =$ ---------- [2]

END OF QUESTION PAPER

Question			Answer/Indicative content	Marks	Part marks and guidance	
1	a		5, 5	2	**B1** for one correct Or **M1** for $(-1)^2 - 4 \times (-1)$ or $5^2 - 4 \times 5$ seen	
	b		Correct smooth curve through all 7 correct points	2	**B1** for at least 6 points plotted correctly FT their table	Use overlay Tolerance for plotting ± 1mm Intention of correct smooth curve through correct points
	c		–0.7 to –0.5 and 4.5 to 4.7	2	**B1** for each correct value or each correct value FT *their* parabola	Tolerance half small square **Examiner's Comments** Few candidates dealt with this quadratic function successfully. Most errors in completing the table were at $x = -1$ with its double negative, but errors were also made at $x = 5$. Little supporting working was seen. Many were able to plot their points correctly but only a few managed a parabola. Most often points were not joined or a ruler was used rather than a freehand curve. Reading off the graph to solve the equation graphically was a concept beyond most candidates understanding. The line $y = 3$ was not drawn. Some gained a mark for the answer 4.5 unsupported with no evidence on their graph.
			Total	6		

Question			Answer/Indicative content	Marks	Part marks and guidance	
2		i	Any straight line through the origin e.g. 	2	**B1** for a straight line	
		ii		2	**B1** for a cubic with two turning points	
			Total	4		

Question			Answer/Indicative content	Marks	Part marks and guidance	
3	a		(1, 3)	1		Examiner's Comments One of the more successfully answered questions. A very large majority scored the mark for coordinates with the only error of any note being to transpose the figures giving (3, 1).
	b		Point plotted at (5, –2)	1		Examiner's Comments The point was invariably placed correctly with a very small number plotting at (–2, 5).
	c		Isosceles	1		Examiner's Comments One of the more successfully answered questions. A very large majority scored the mark for coordinates in part (a) with the only error of any note being to transpose the figures giving (3, 1). Equally in part (b) the point was invariably placed correctly with a very small number plotting at (–2, 5). In (c) isosceles and equilateral were stated in roughly equal numbers but spelling of the former was a problem for most.
			Total	3		

Question			Answer/Indicative content	Marks	Part marks and guidance	
4	a		1 5 9	2	**B1** for 2 correct	**Examiner's Comments** The whole question was generally answered well and a large majority scored full marks for completing the table correctly. The very small number who scored only 1 mark tended to give a value for $y = 0$ when $x = 0$.
	b		Ruled line between (0, 1) and (4, 9)	2	**B1** for 3 points plotted correctly ft their table with no more than 2 incorrect points	Mark intent for plotted points **Examiner's Comments** Plotting rarely caused any problems but a mark was commonly withheld due to failure to join the points with a straight line. A small number of candidates thought the line needed to go through the point (0, 0).
			Total	4		

Question			Answer/Indicative content	Marks	Part marks and guidance	
5	a		$y = 2$ oe	1	Accept any clear indication Examiner's Comments This question was not well understood by candidates. Wrong answers included $x = 2$, $y = x$, $y = 2x$ and lists of coordinates.	
	b		Correct line ruled from x = –2 to x = 4	3	**B2** for correct line but not reaching x = –1.5 or x = 3.5 and spanning 10 small squares horizontally or **B1** for intended correct line but out of accuracy or **B1** for straight line through (0, –1) or line with gradient = 2 or **B1** for two correct points plotted OR **M1** for two correct pairs of coordinates	Allow from x = –1.5 to x = 3.5 Condone good freehand Whole of line from –1.5 to 3.5 must be within 1 small square at all points Points may be implied by line. x –2 –1 0 1 2 3 4 y –5 –3 –1 1 3 5 7

Question			Answer/Indicative content	Marks	Part marks and guidance	
					And B1 for correctly plotting two of *their* points and drawing one straight line through them Examiner's Comments Very few candidates attempted to list coordinates to draw the line. Lines were seen passing through (0, –1) but with the wrong gradient. Other lines with the correct gradient were seen but in the wrong place. One strategy appeared to be to attempt to join (–2, 4) to (4, –2)	Coordinates must be seen
			Total	4		
6	a		(4, 1)	1	Examiner's Comments Nearly all candidates found the correct coordinates of a given point on a grid.	
	b		(–3, –4) plotted	1	Examiner's Comments Only a few students were able to plot a point when given its coordinates. A common error here was to plot (–4, –3) rather than (–3, –4).	ignore label
			Total	2		

Question			Answer/Indicative content	Marks	Part marks and guidance	
7		i	2, 5	1		
		ii	Point plotted at (2, –5)	1	Centre of point or cross within half small square of intersection	Mark intention and ignore extras
		iii	–3, 0 or 7, 0	2	**B1** for x, 0 **If 0 scored** **SC1** for –8, 5 or –8, –5 or 12, 5 or 12, –5 Examiner's Comments (i) and (ii) were well answered. A very few candidates reversed the coordinates. Part (iii) was poorly answered. A common misread was to think that AC was a **side** of the square and not a diagonal. In this case a follow through answer scored 1 mark although quite a few gave the answer (8, 5) which came from a rectangle with one side AC.	
			Total	4		

Question			Answer/Indicative content	Marks	Part marks and guidance	
8	a		$^{-}10$	1	Examiner's Comments Many candidates were able to complete the table correctly; if only one value was correct it was usually 2 when $x = 1$.	
			2	1		
	b		5 points plotted	1	FT table	
			Correct ruled line	1	Examiner's Comments A significant number plotted the points correctly, but then did not make any attempt to join them.	from $x = {}^{-}2$ to $x = 2$
	c		1.5	1	FT from ruled line only Examiner's Comments This was not attempted by several candidates, even when a correct line had been drawn on the graph.	
			Total	5		

Question			Answer/Indicative content	Marks	Part marks and guidance	
9	a		¯3 1 3	1		
	b		correct ruled line from x = –2 to x = 4	2	**B1** for 4 points correctly plotted **FT** their table for points only **Examiner's Comments** Most candidates did complete the table correctly in (a) and plotted the points accurately in (b). However several did not join the points. Some candidates did not score the mark in (a) but were able to correctly plot their points, again a small number made this difficult for the examiners due to using a blunt pencil.	For points and line tolerance is ½ small square horizontally
			Total	3		

Question			Answer/Indicative content	Marks	Part marks and guidance	
10	a		8	1	Examiner's Comment In this part, many correct *y* values were seen for *x* = 4. Incorrect responses seen did not appear to be consistent.	
	b		Correct curve	2	**B1FT** for 4, 5 or 6 points plotted correctly ½ square tolerance **B1** max if line ruled (between any points) Examiner's Comment In this part, points were sometimes plotted and sometimes these were accurate. The use of a sharp pencil and care in plotting is recommended. Many candidates scored 1 mark. Sometimes the points were joined; when this was done as a freehand continuous curve candidates had some difficulty in getting their curve to pass through the points. Candidates should be made aware that if the curve misses a plotted point by further than half a square the curve mark is not scored. Sometimes the points were incorrectly joined by ruled lines.	

Question			Answer/Indicative content	Marks	Part marks and guidance		
	c		–0.9 to –0.6 2.6 to 2.9	2	**B1** for each If 0 scored **SC1** for (–0.9 to ¯0.6, 2) and (2.6 to 2.9, 2) If 0 scored SC1 for answer as an inequality Eg $-0.8 \leq x \leq 2.7$ **Examiner's Comment** In this part, very few candidates knew how to solve the equation by drawing a line on the graph. A small number of candidates picked up one mark for giving the positive solution.	If more than two answers mark the worst two Condone for **2** marks when both answers in body but only one given on answer line	
			Total	5			

Question			Answer/Indicative content	Marks	Part marks and guidance	
11	a		¯1 [¯4] [¯5] [¯4] ¯1 4 [11]	2	B1 for 1 correct Examiner's Comments Most candidates understood the process of substitution and plotting required in part (a) the most common error was to give –9 as the first value.	
	b		Correct curve	2	B1 for 4 or more points correctly plotted FT *their* table | Tolerance half small square Examiner's Comments In part (b) many candidates were able to earn at least 1 mark for plotting points but many failed to complete the curve correctly, with some using ruled lines.	
	c		Ruled line y = –2 drawn	1	Line from x = -2 to x =2 Examiner's Comments Part (c) was generally well answered by the correct line with occasional use of x = –2 or simply no response.	

Question			Answer/Indicative content	Marks	Part marks and guidance		
	d		-1.8 to -1.6 and 1.6 to 1.8	2	B1 for 1 correct	FT from *their* graph ± 0.1 for 2 or 1 mark Must have a curve and a straight line for FT	
					Examiner's Comments Two correct answers for *x* in part (d) were rare although some managed a positive value in the acceptable range. Again, there were many blank responses in this part. Candidates should be reminded that answers given in coordinate form are not acceptable.		
			Total	7			