SCORE A+

Algebra

With Classified answer book

8

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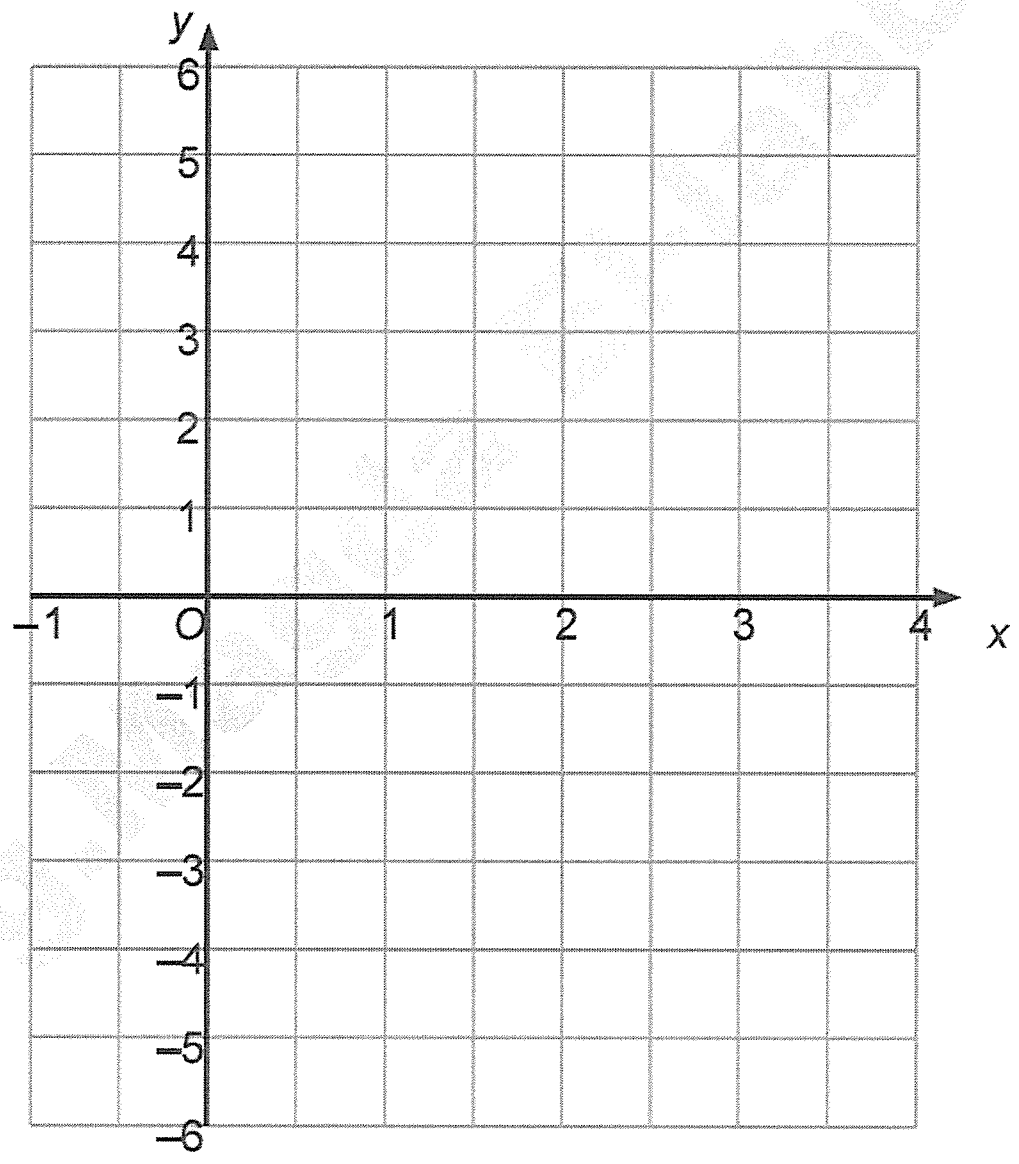
13- Plotting Graphs

1. (a) Complete the table of values for $y = x - 3$

x	–1	0	1	2	3	4
y		–3	–2			

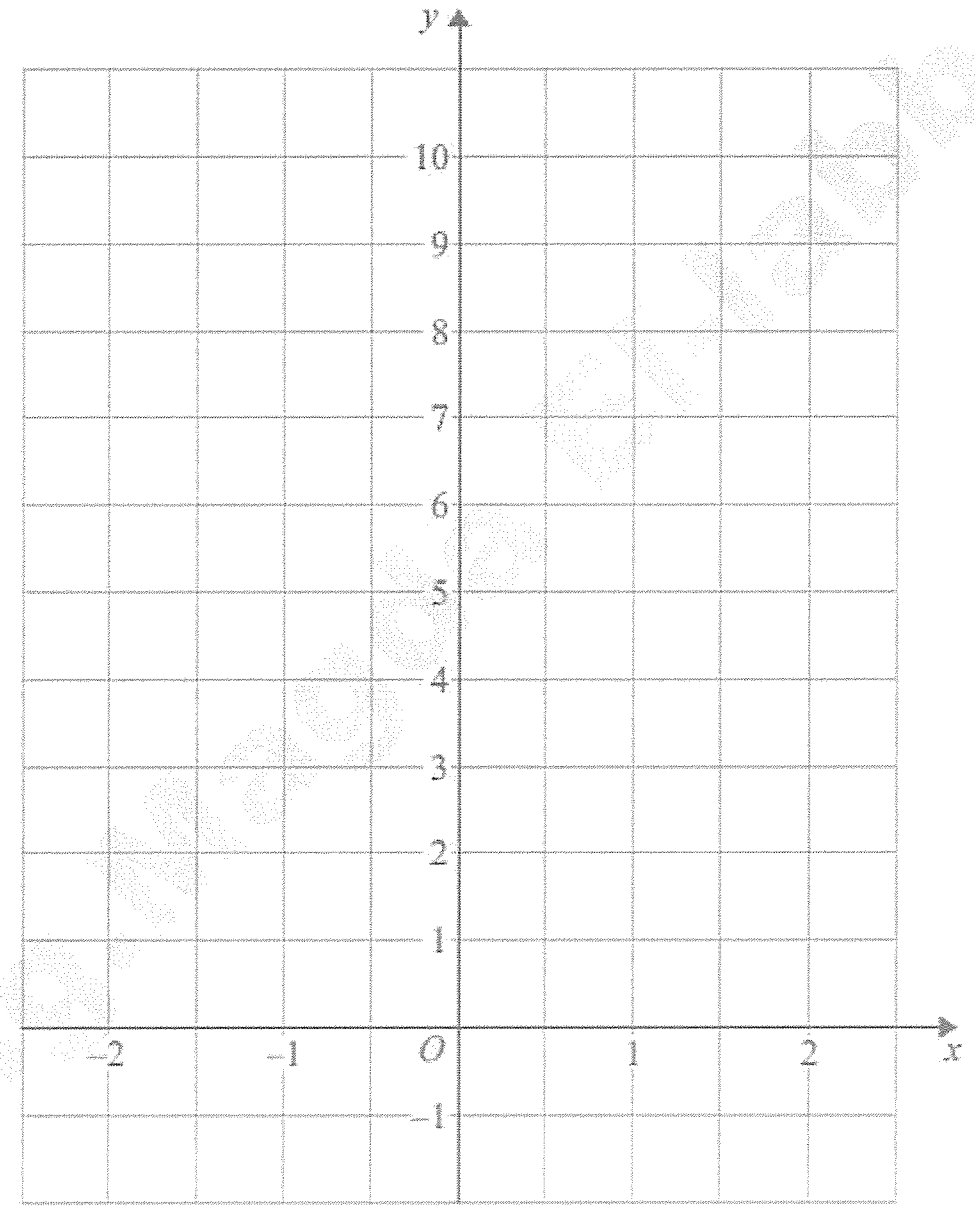
(b) On the grid, draw the graph of $y = x - 3$



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

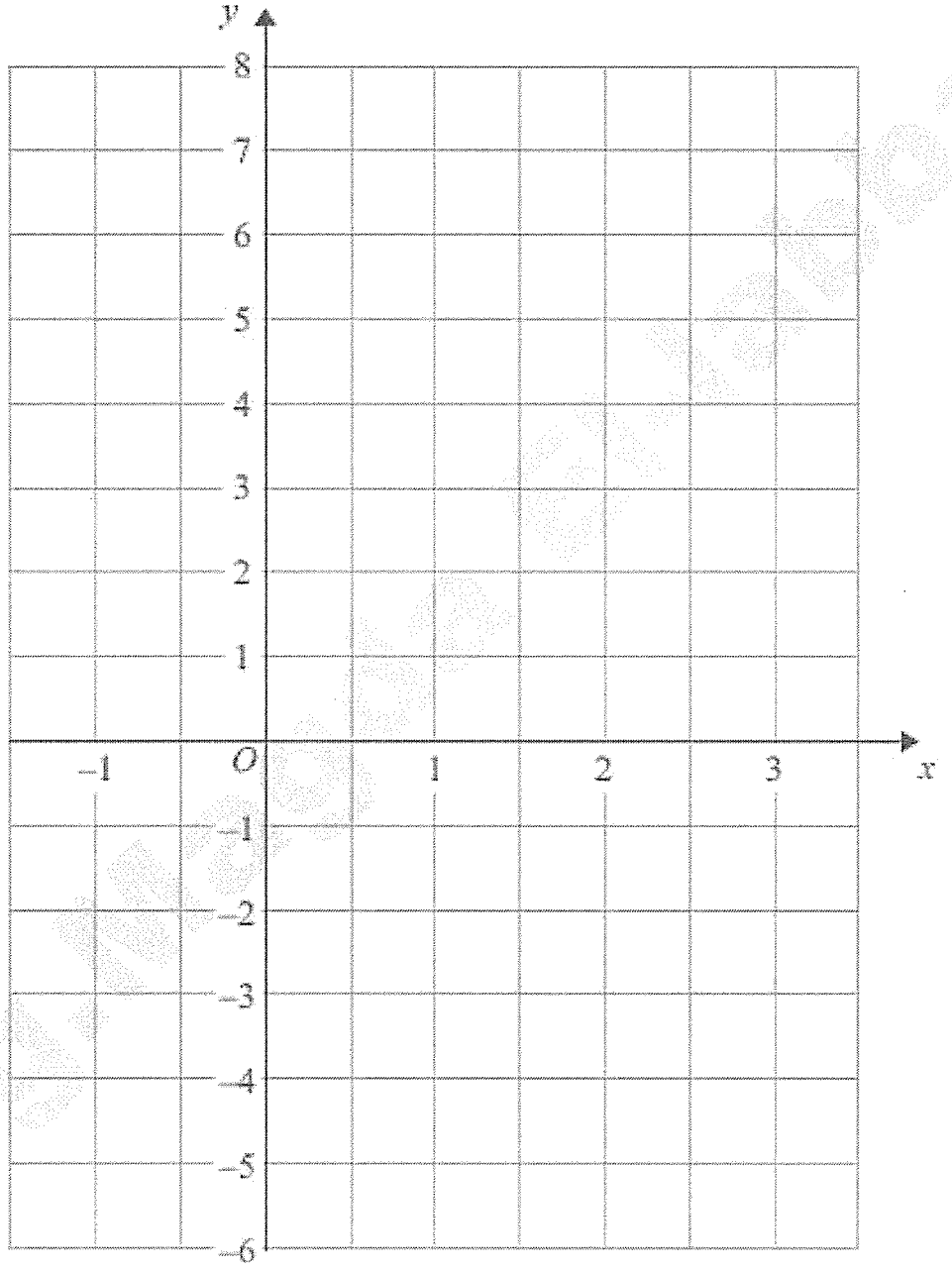
x	–2	–1	0	1	2
y	1		-5		

(b) On the grid, draw the graph of $y = 2x + 5$



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

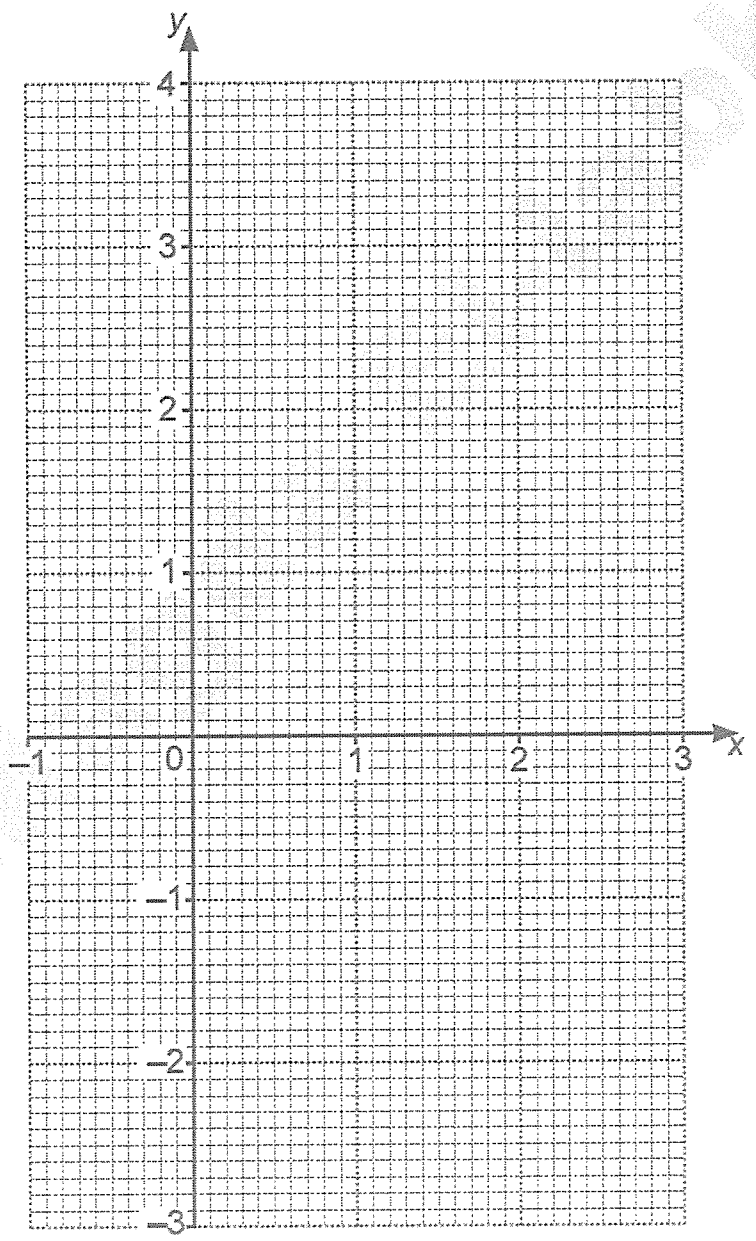
x	-2	-1	0	1	2	3
y		-5	-2			



4. (a) Complete the table of values for $3x + 2y = 4$

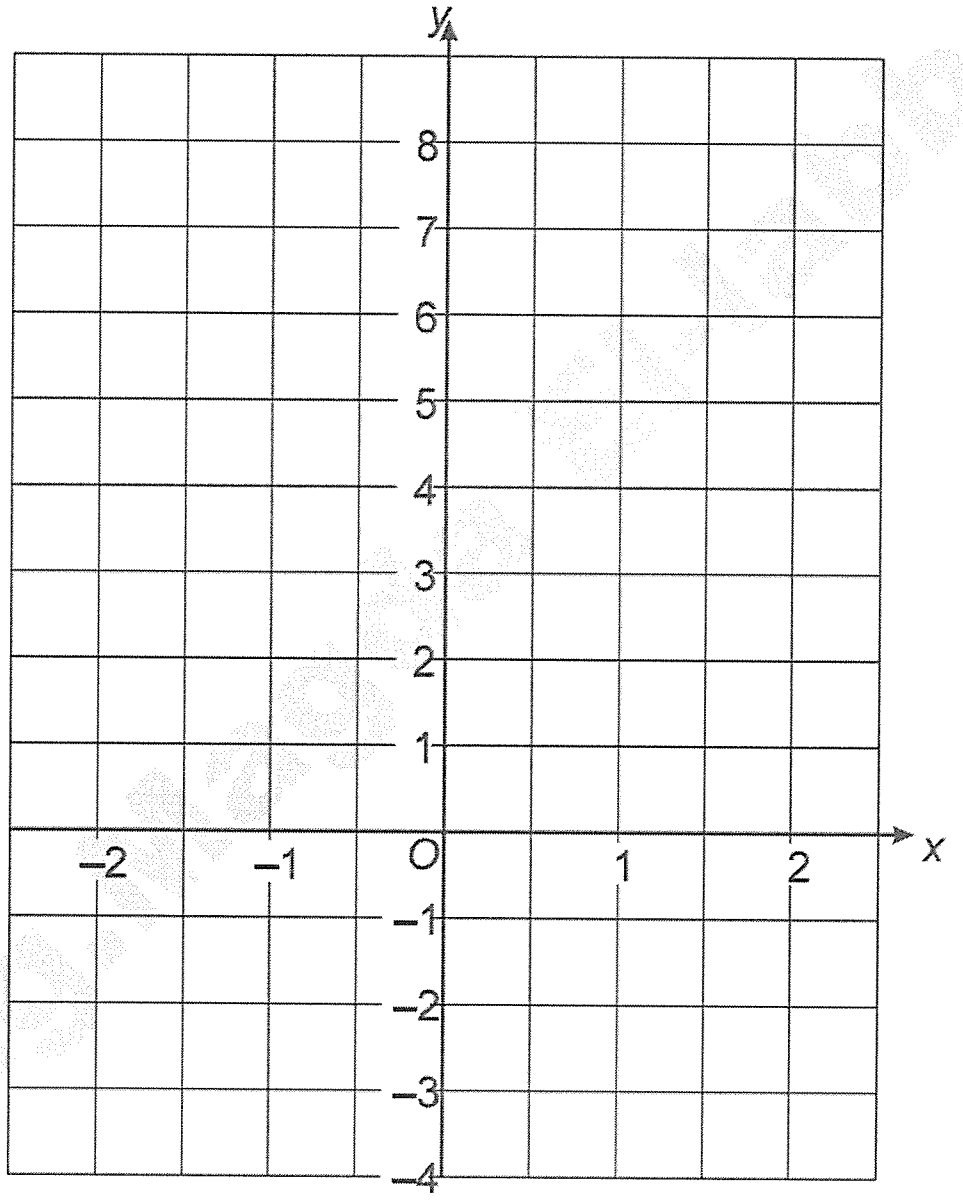
x	–1	0	3
y			

(b) Draw the graph of $3x + 2y = 4$ for values of x between –1 and 3



5. On the grid, draw the graph of $y - 3x = 2$

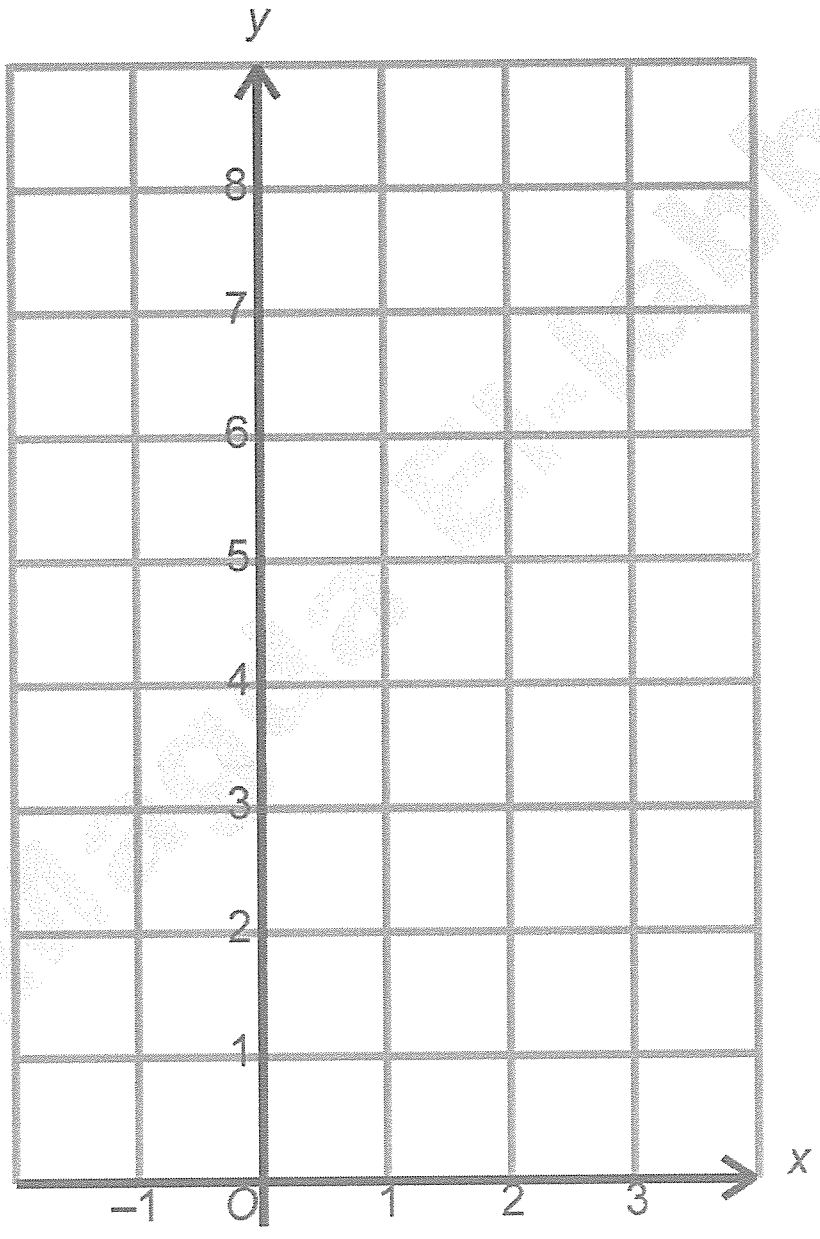
x	–2	–1	0	1	2	3
y			2	5		



6. On the grid, draw the graph of $x + y = 5$

using the following points

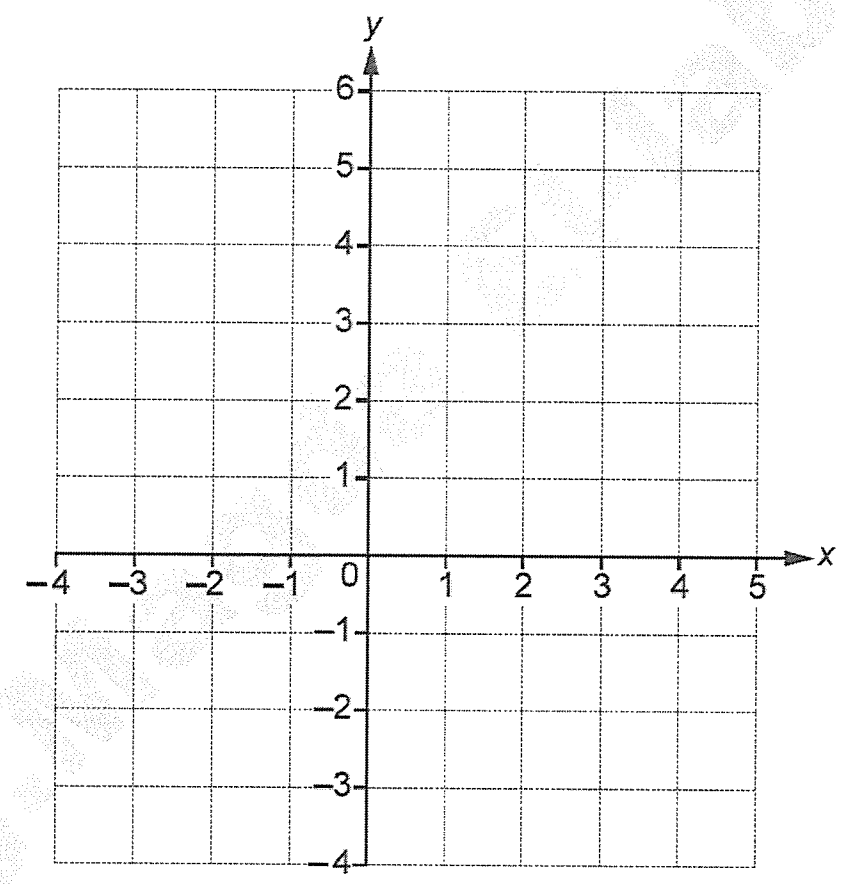
(0 , ...) , (..... , 4) , (2 , ...)



7. (a) Complete the table of values for the equation $2y - 2 = 4x$

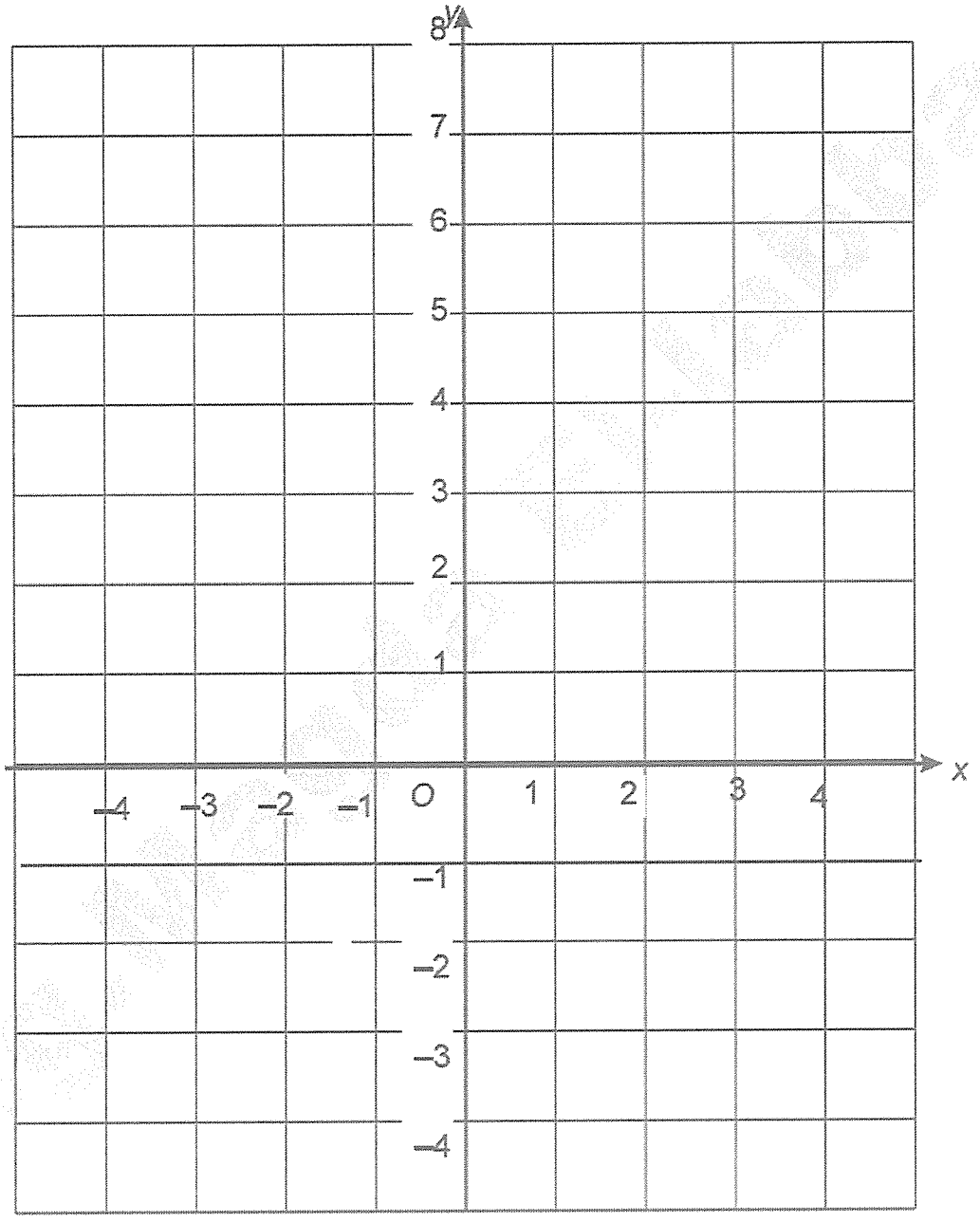
x	−1	0	2
y	−1		

(b) Use your results to plot the graph of $2y - 2 = 4x$ on this grid.



8. Complete the table of values for $y = 2(x + 1)$

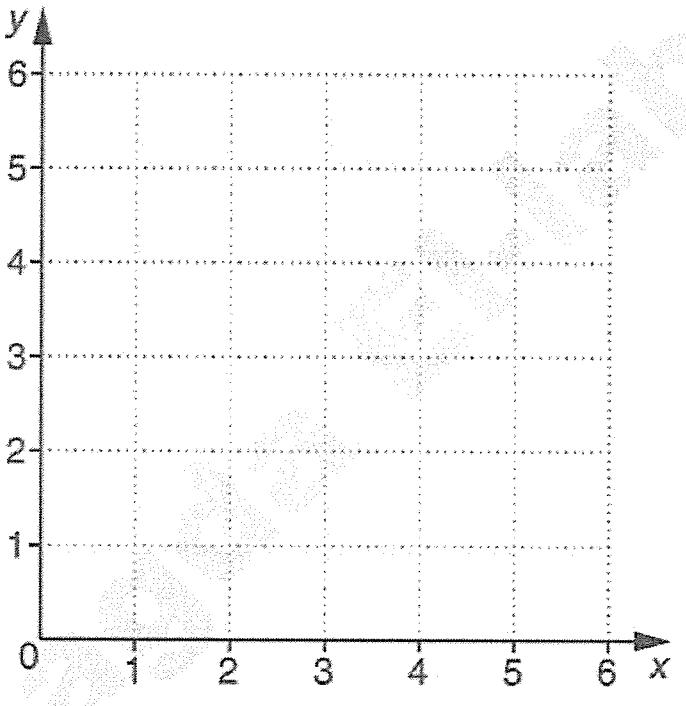
x	–2	–1	0	1	2
y	-2		2		



9. (a) Complete the table for $2x + 3y = 12$.

x	0	4.5	
y			0

(b) Draw the graph of $2x + 3y = 12$ for $0 \leq x \leq 6$.



(c) Use your graph to find the gradient of the line $2x + 3y = 12$.

10. Which of the graphs are non-linear?

Tick your answers.

a) $y = \frac{x}{2} + 4$ .....

b) $10x = 5 - x$ .....

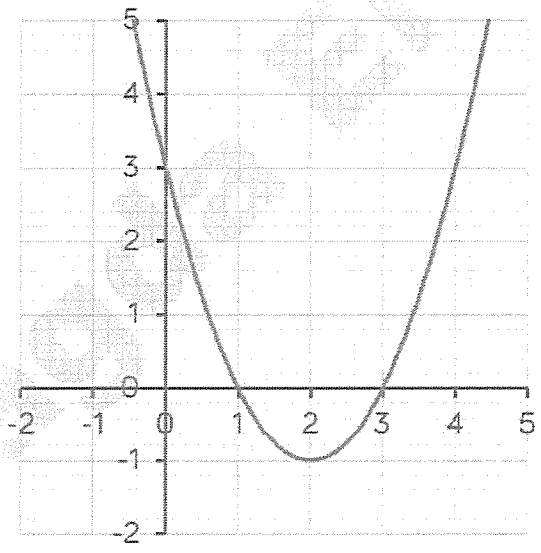
c) $4x^3 - 2 = x$ .....

d) $x + x = 25$ .....

e) $y = x^2 + 4$ .....

11. Here is the graph of $y = x^2 - 4x + 3$

Use the graph to find



a) the value of y when $x = 0.5$ .....

b) the values of x when $y = 4$ .....

c) the values of x when $y = 0$ .....

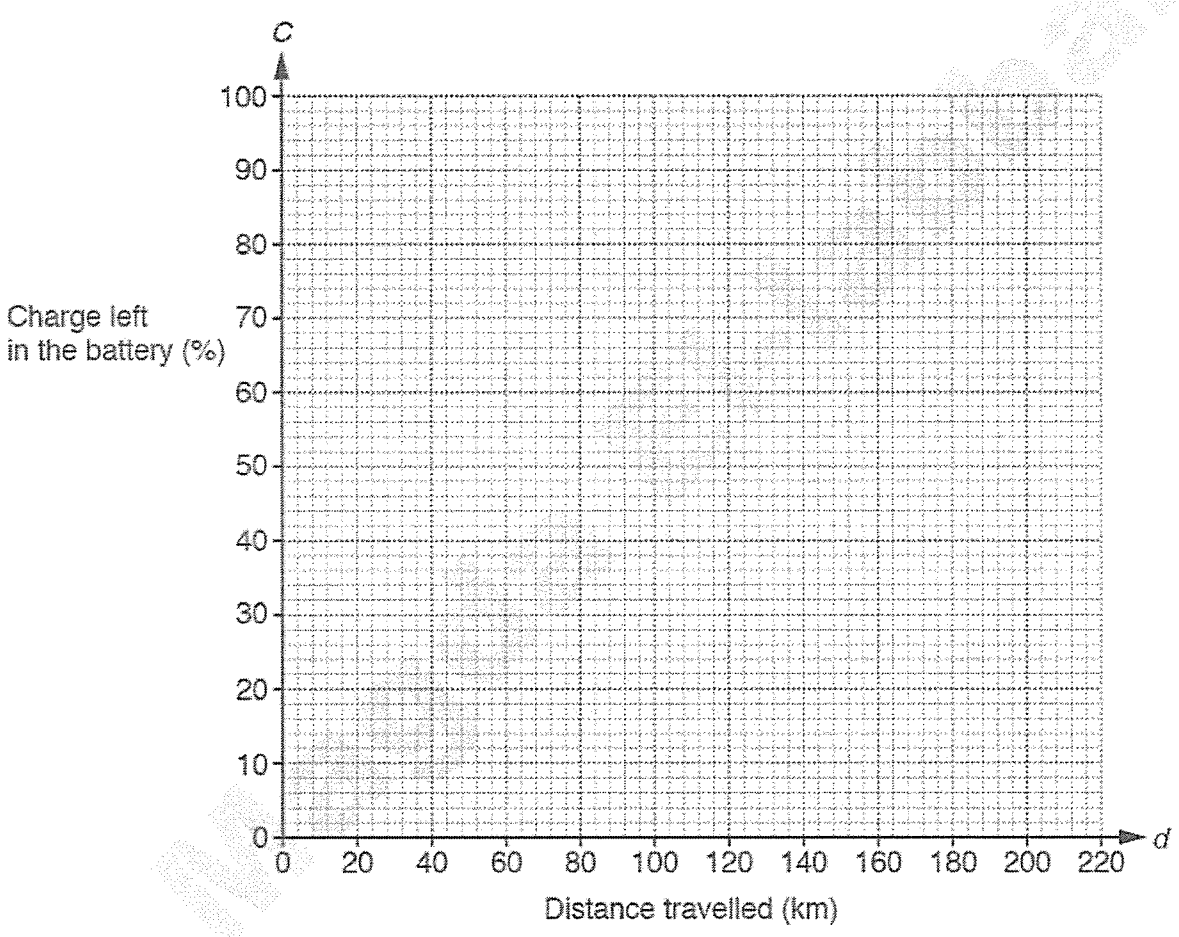
12. (a). A company tests a new battery for an electric car.

The distance the car travels, d km, and the charge left in the battery, C %, are measured.

Some measurements are shown in the table.

Distance travelled, d km.	0	50	100	150
Charge left in the battery, C %.	100	75	50	25

Plot these values on the grid and use them to draw a straight line.



(b). (i) Use your line to estimate the greatest distance the car will travel.

---------- km

(ii) What assumption is made when estimating the greatest distance?

(c). For your line in part (a), find

(i) the gradient,

(ii) the *C*-axis intercept.

(d). Use your answers to part (c) to write down the equation of your graph.

Give your equation in the form $C = ad + b$.

$C =$ ----------

13. a) Complete this table of values for the function y = x2.

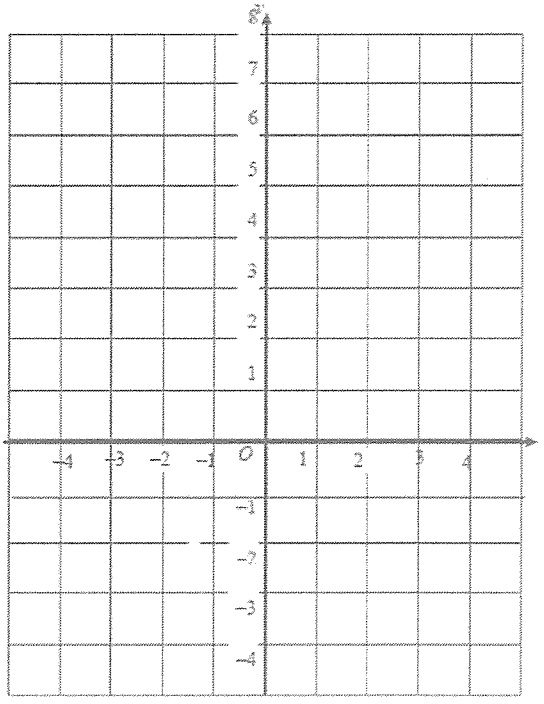
x	−3	−2	−1	0	1	2	3
y		4					

b) Draw a graph

c) the value of ▯ when ▯ = -1.5 .....

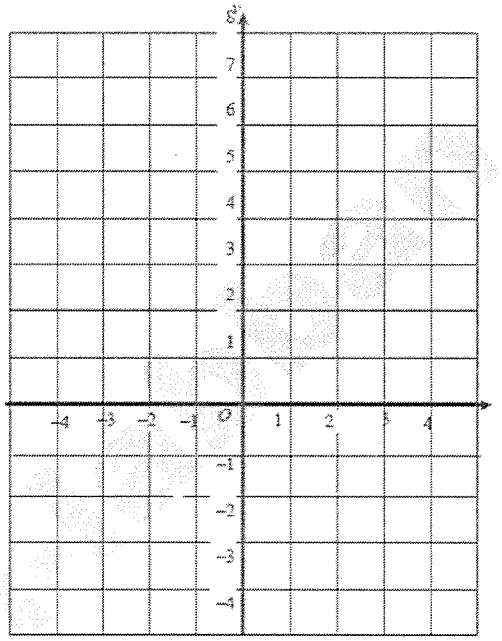
d) the values of ▯ when ▯ = 3 .....

e) the values of ▯ when ▯ = 0 .....



14. a) Complete this table of values for the function $y = x^2 + 1$

x	−3	−2	−1	0	1	2	3
y	10						



b) Draw a graph

c) the value of ▯ when ▯ = 1.5 .....

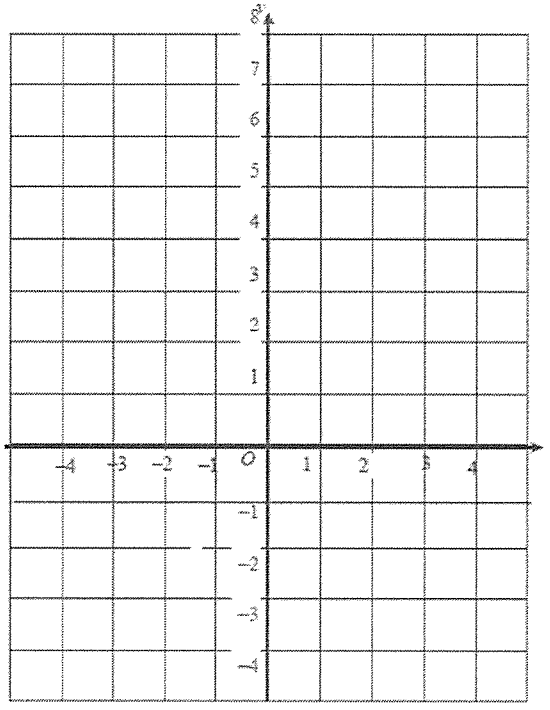
d) the values of ▯ when ▯ = 1 .....

e) the values of ▯ when ▯ = 0 .....

15. a) Complete this table of values for the function $y = x^2 - 3$.

x	−3	−2	−1	0	1	2	3
y	6						

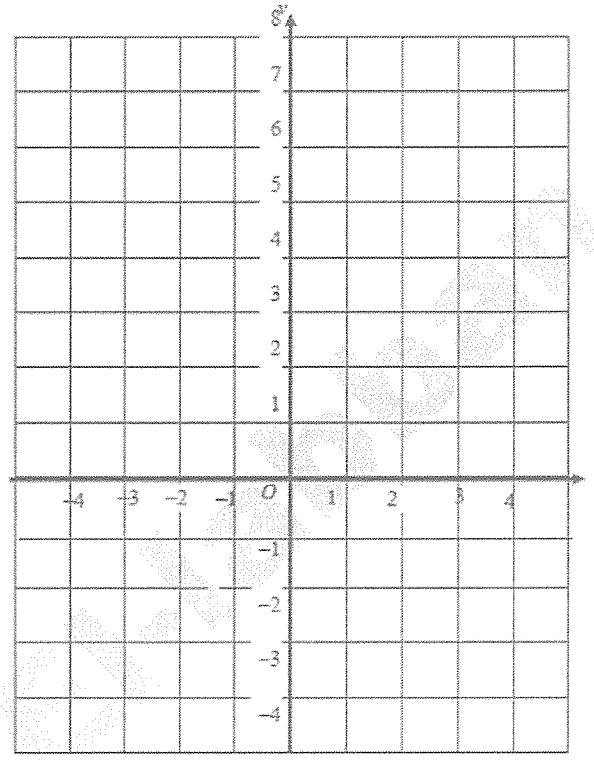
b) Draw a graph



16. a) Complete this table of values for the function $y = x^2 + 5$.

x	−2	0	2	4	6
y			9		

b) Show that the point (5, 31) is not on the graph of $y = x^2 + 5$.



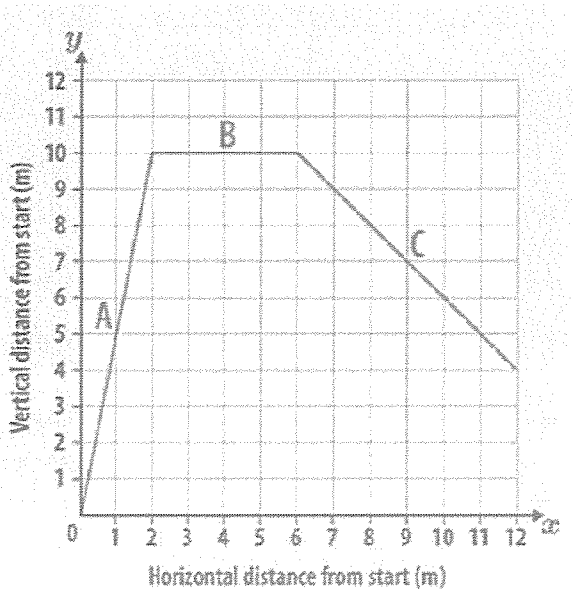
17. Copy and complete the table of values for y = 5

Give your answer as an integer or as a traction in its simplest form.

A =

B =

C=

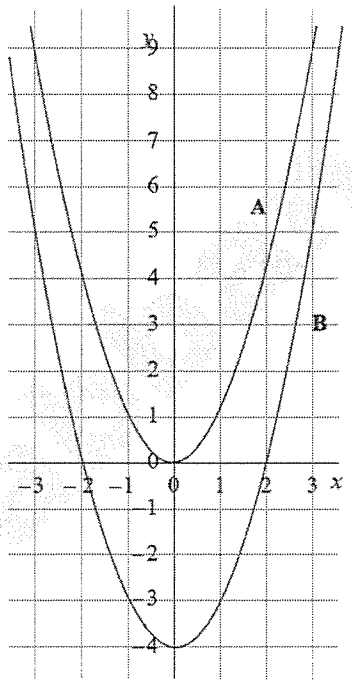


18. Here is a graph of each curve, A and B

a)Here is a point: (−2, n).
Work out the value of n if the point is on

i) Curve **A** .....

ii) Curve **B.** .....

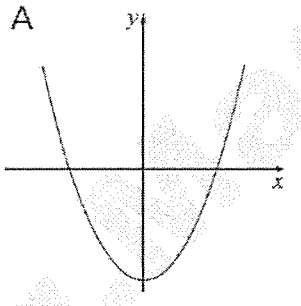


b) The point (k, 5) is on curve B.
Work out the possible value of k.

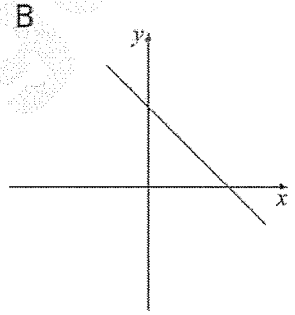
.....

19. Match each graph to the correct equation.

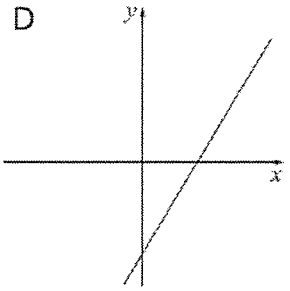
A



B



D



Graph ..... shows the equation $y = 2x - 6$

Graph ..... shows the equation $y = 6 - x$

Graph ..... shows the equation $y = x^2 - 6$

20. Is the point (1 ,–1) on the line $y = 3x - 4$?

☐ Yes ☐ No

Show how you know.

21. The equation of the straight line is $y = 2x + 1$

Is the point (7, 12) on this straight line?

☐ Yes ☐ No

Explain your answer.

22. The equations of four lines are given below

Line A $y = 4x + 1$
Line B $y + 2x = 8$

Line C $y = 9 - 2x$

Line D $y - 3x = 3$

Which lines go through the point (2, 9)?

.....

23. Solve $t^2 - 8t + 12 = 0$

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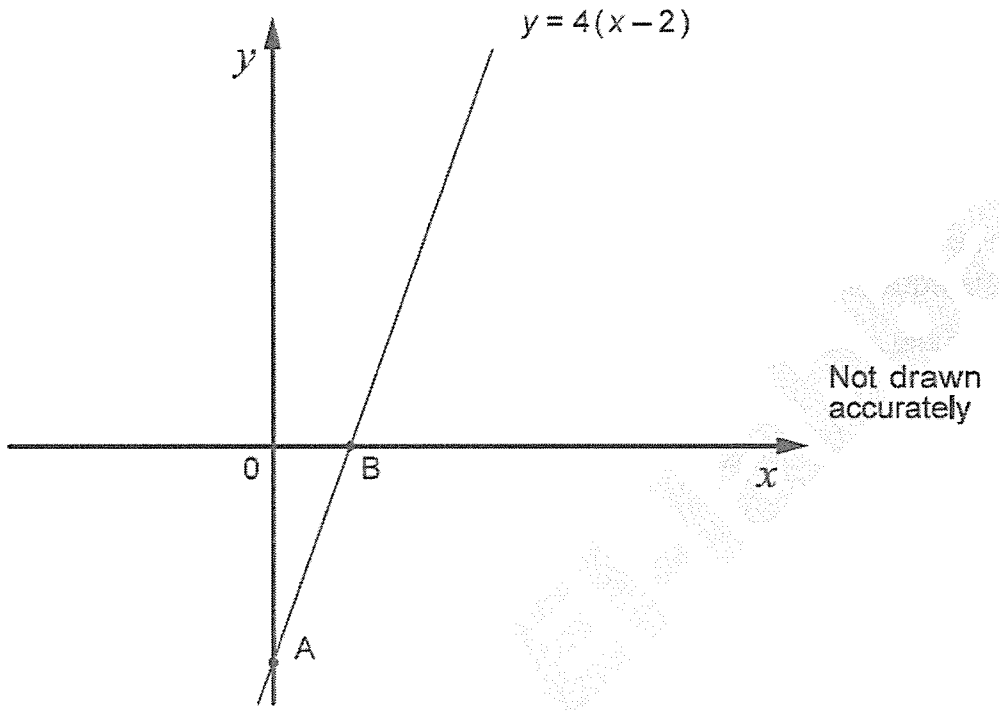
24. The diagram shows the straight line with equation $y = 4(x - 2)$



Work out the coordinates of the points marked A and B.

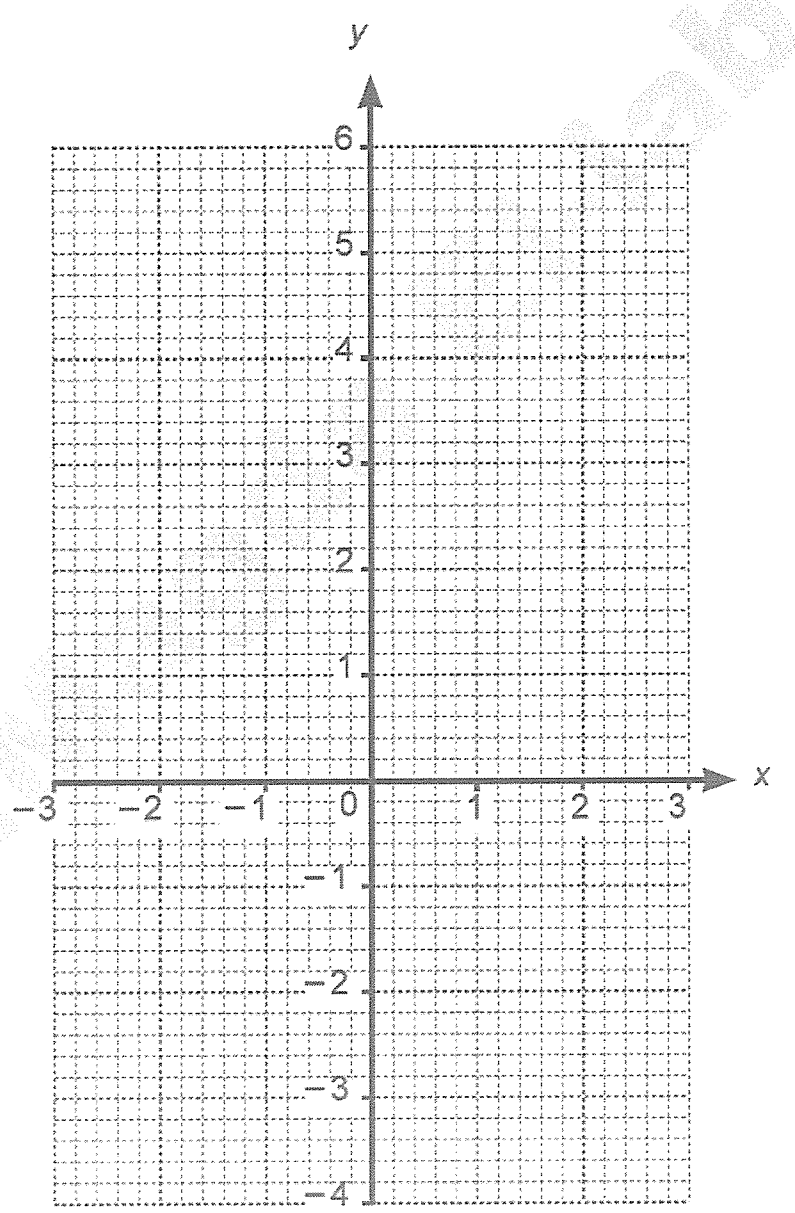
A is (....., ...)

B is (....., ...)

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

x	–3	–2	–1	0	1	2	3
y		0		–4	–3	0	

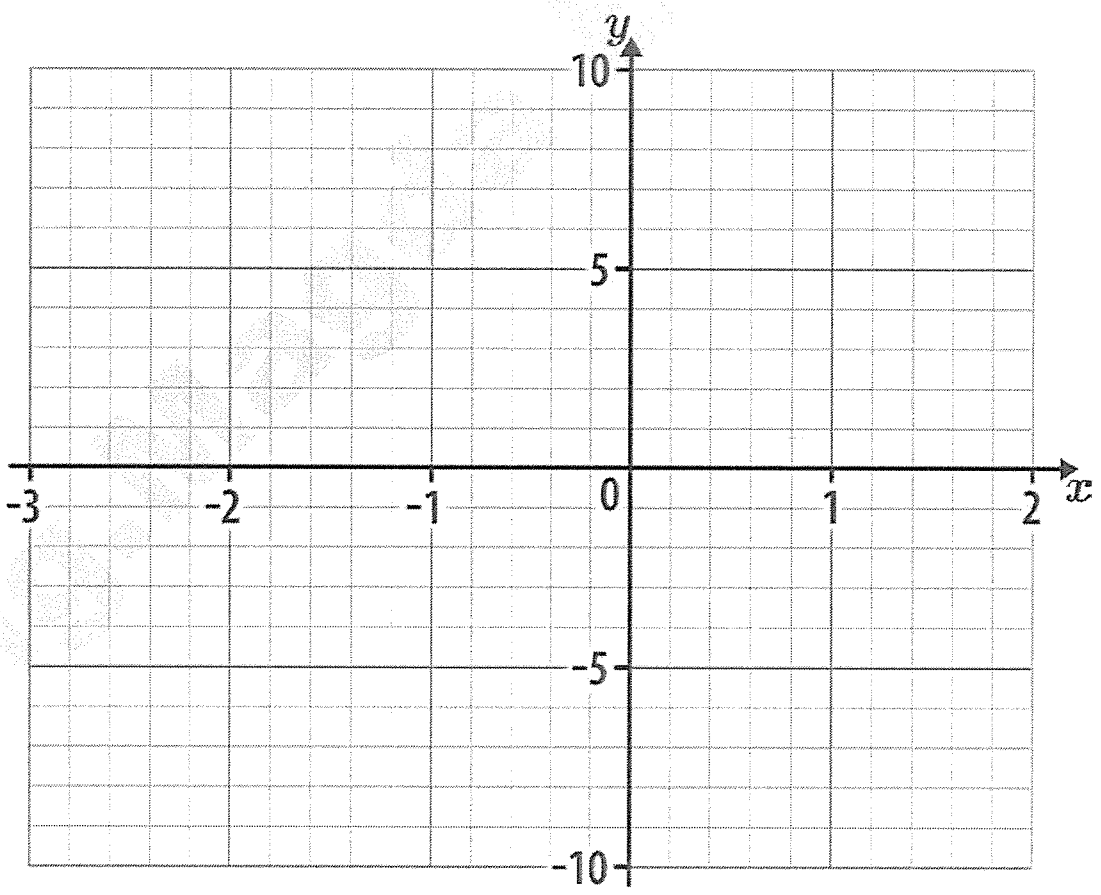
(b) Draw the graph of $y = x^2 - 4$ for values of x between –3 and 3



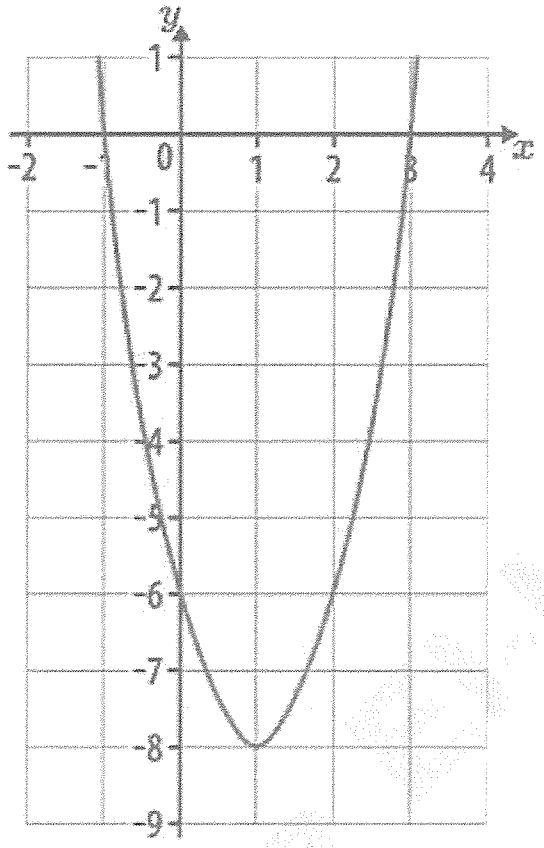
26. a) Complete the table of values for $y = x^2 + 3x - 2$

x	-3	-2	-1	0	1	2
y		-4	-4			8

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



27. A graph of a quadratic function is shown below.



Write down the coordinates of

a) the *y*-intercept.

Answer: .....

b) the turning point.

Answer: .....

c) the roots of the function.

Answer: .....