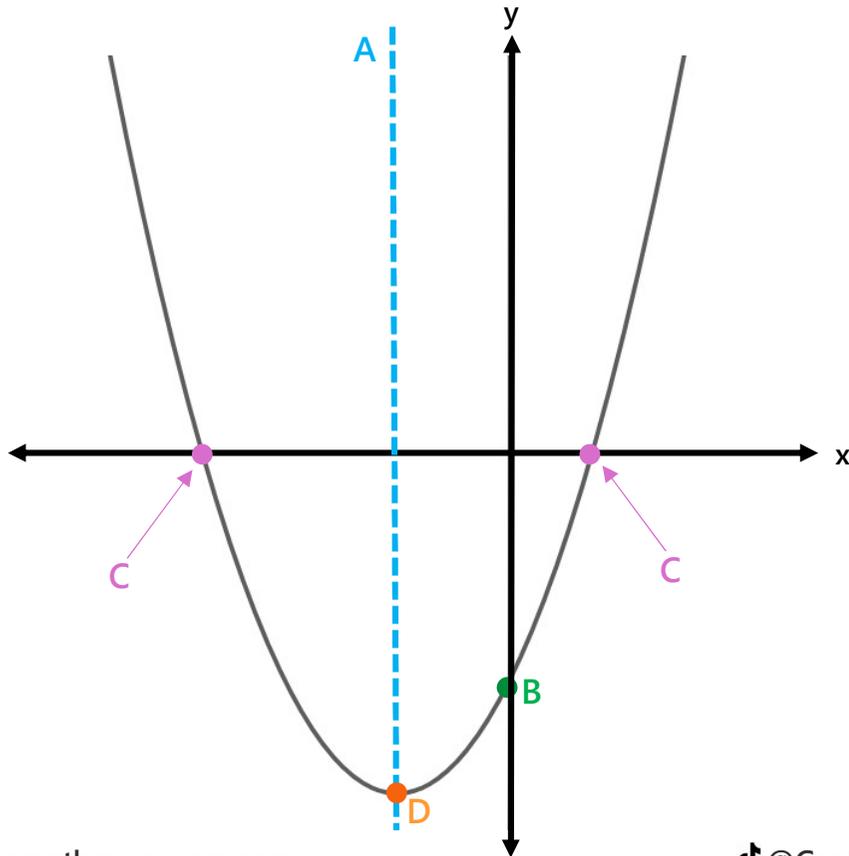


# QUADRATIC GRAPHS

- 1) A quadratic graph is shown below. Use the graph and table below to match each key point to a letter.

Key Point	Letter
Roots	
Turning point	
Line of symmetry	
y-intercept	



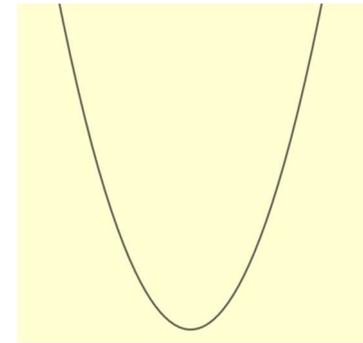
- 2) A quadratic equation is of the form

$$y = ax^2 + bx + c$$

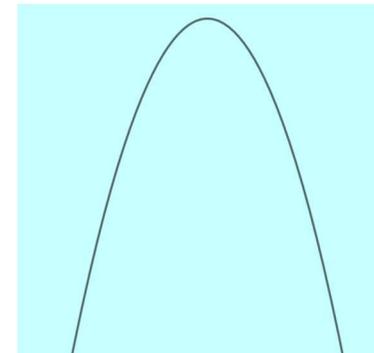
Complete the following sentences using one of the symbols:

< > =

- a. When  $a$  \_\_\_ 0, the curve makes a U-shape (opens upwards).



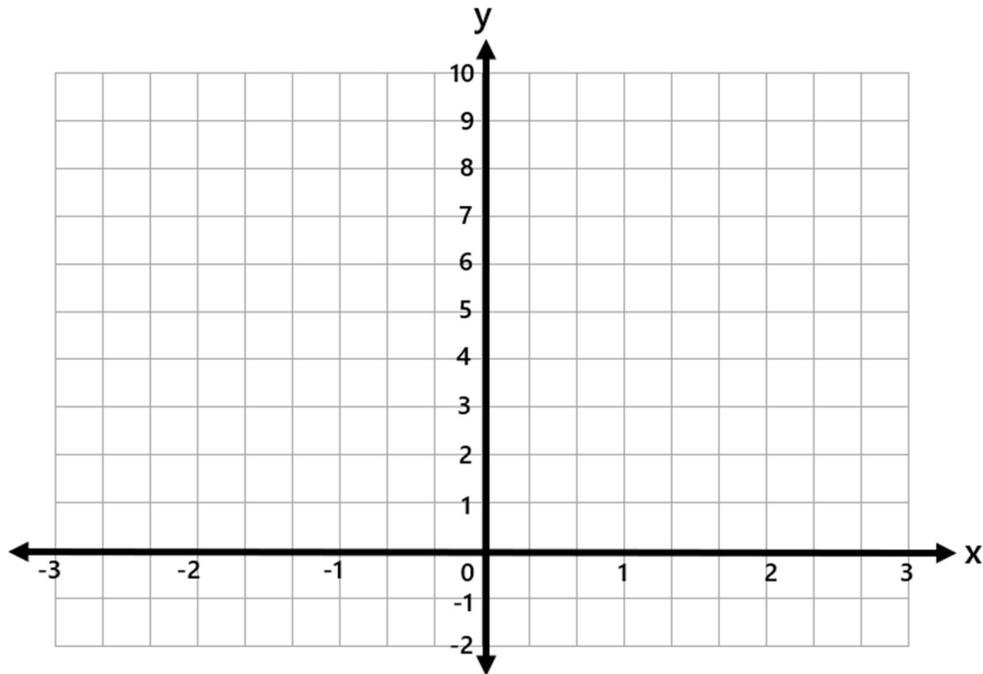
- b. When  $a$  \_\_\_ 0, the curve makes an n-shape (opens downwards).



3) Complete the table of values for the equation  $y = x^2$

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

a. Draw the graph of  $y = x^2$  on the coordinate grid.



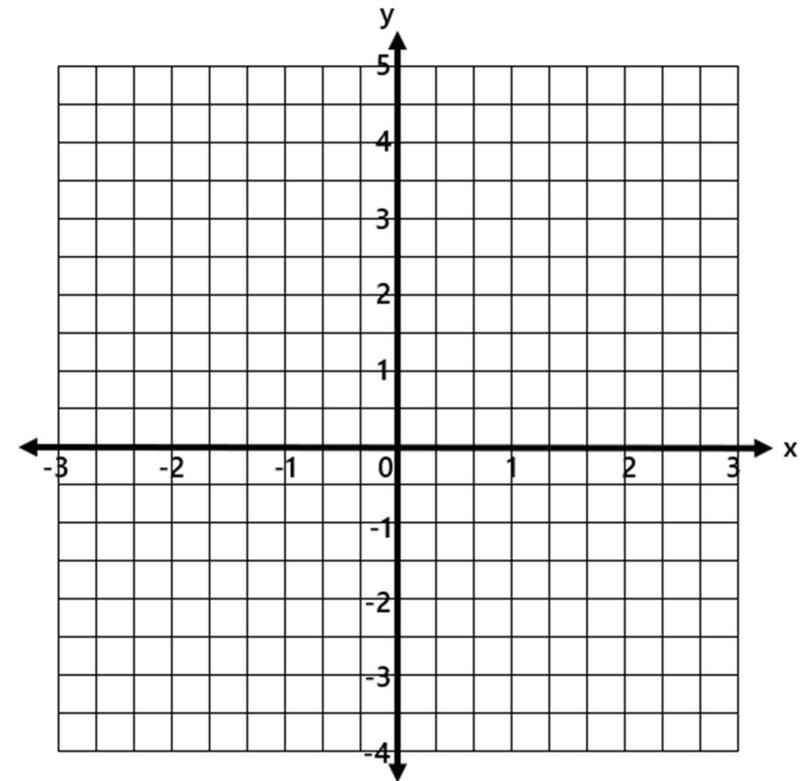
b. State the coordinates of the turning point.

c. State the line of symmetry of the graph  $y = x^2$

4) Complete the table of values for the equation  $y = x^2 - 4$

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

a. Draw the graph of  $y = x^2 - 4$  on the coordinate grid.



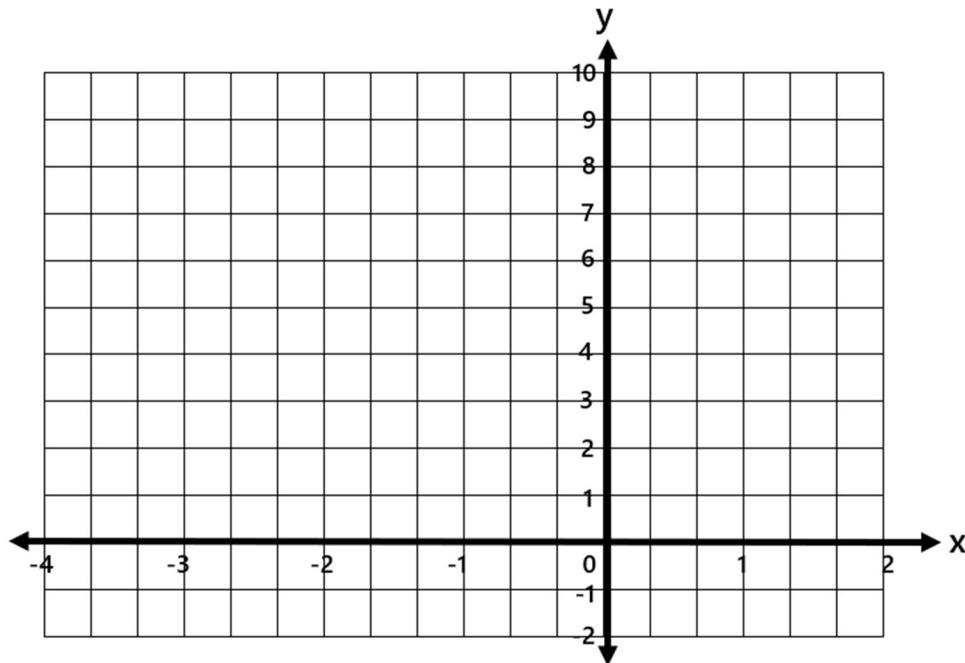
b. State the coordinates of the turning point.

c. State the roots of the equation  $y = x^2 - 4$

5) Complete the table of values for the equation  $y = x^2 + 2x$

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

a. Draw the graph of  $y = x^2 + 2x$  on the coordinate grid.

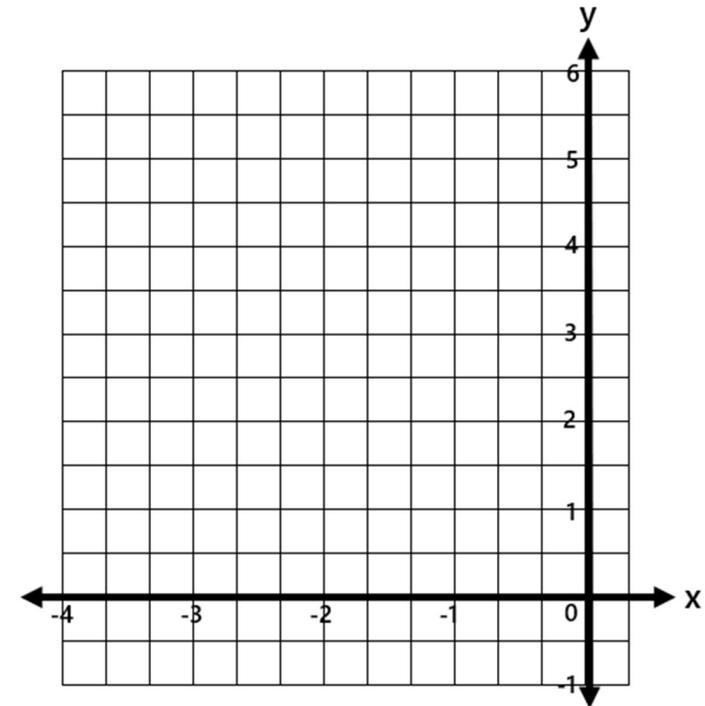


- State the coordinates of the y-intercept.
- State the coordinates of the turning point.
- Use the graph to state the solutions to the equation  $x^2 + 2x = 3$ .

6) Complete the table of values for the equation  $y = -x^2 - 4x + 2$

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

a. Draw the graph of  $y = -x^2 - 4x + 2$  on the coordinate grid.

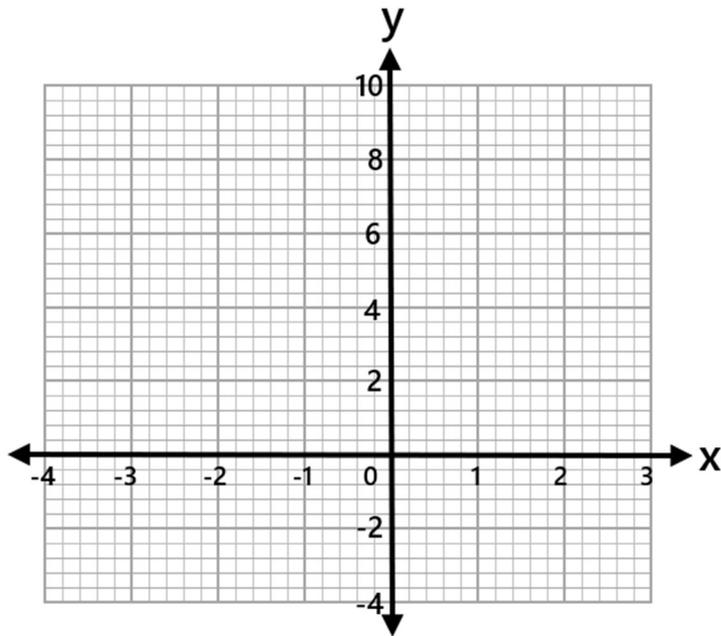


- State the coordinates of the y-intercept.
- State the coordinates of the turning point.
- State the line of symmetry of the graph  $y = -x^2 - 4x + 2$

7) Complete the table of values for the equation  $y = x^2 + x - 2$

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

a. Draw the graph of  $y = x^2 + x - 2$  on the coordinate grid.



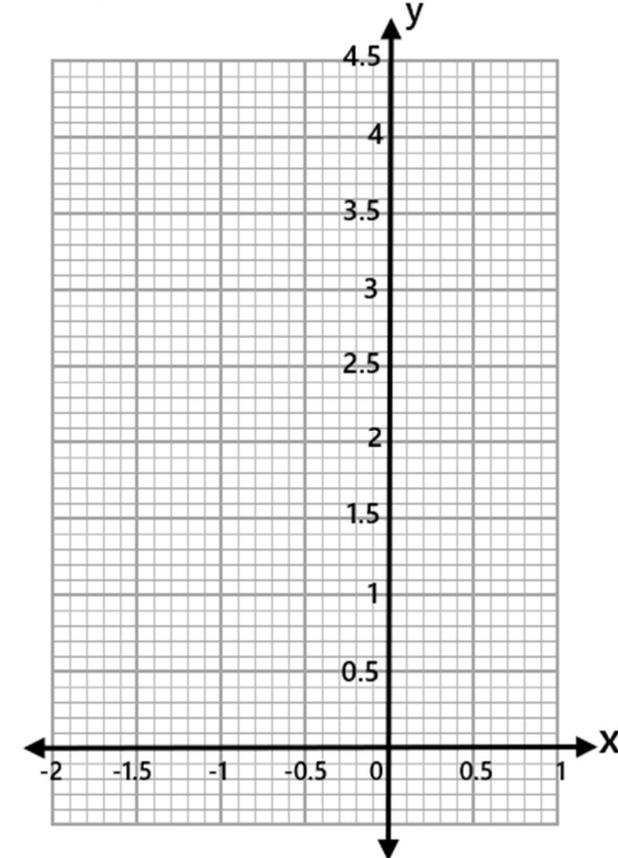
b. Use your graph to estimate the turning point of  $y = x^2 + x - 2$

c. Use the grid to estimate the solutions to the equation  
 $y = x^2 + x - 2 = 2$

8) Complete the table of values for the equation  $y = 4 - 2x - 2x^2$

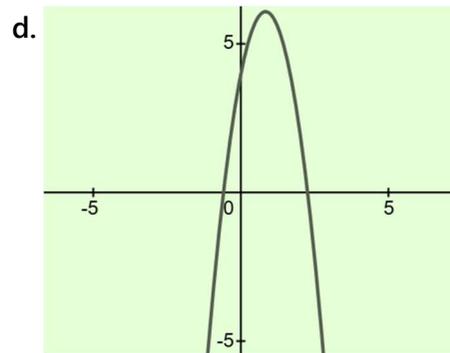
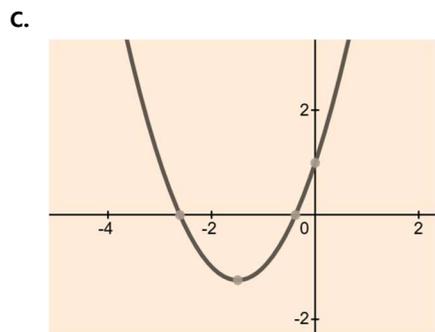
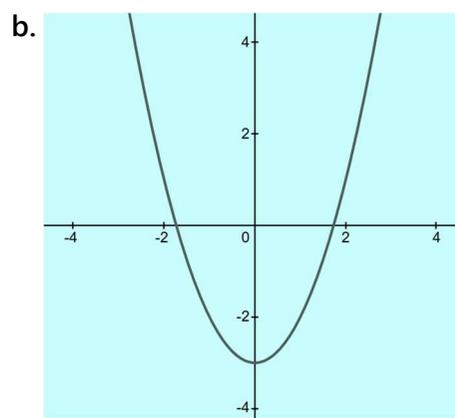
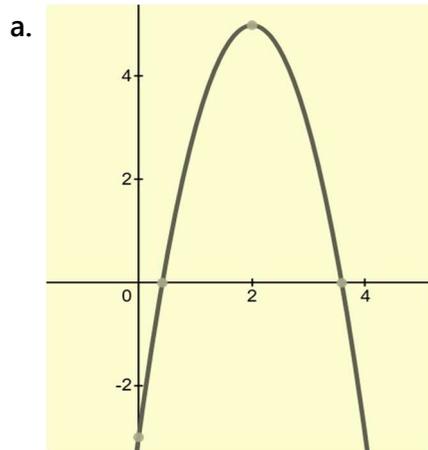
$x$	-2	-1.5	-1	-0.5	0	0.5	1
$y$							

a. Draw the graph of  $y = 4 - 2x - 2x^2$  on the coordinate grid.



b. Use the grid to estimate the solutions to the equation  
 $4 - 2x - 2x^2 = 2$

9) Match the following graphs with an equation in the table.



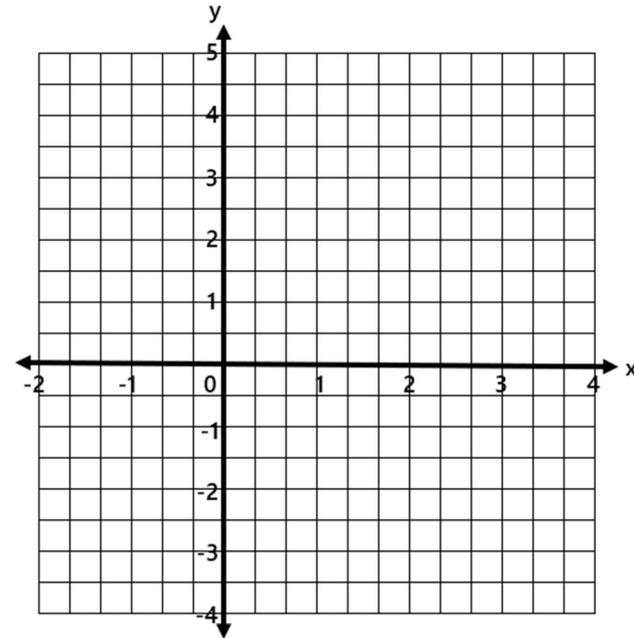
Equation	Graph
$y = x^2 - 3$	
$y = x^2 + 3x + 1$	
$y = -3x^2 + 5x + 4$	
$y = -2x^2 + 8x - 3$	

### Challenge

10) Complete the table of values for the equation  $y = x^2 - 2x - 3$

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

a. Draw the graph of  $y = x^2 - 2x - 3$  on the coordinate grid.



b. Use the grid above to identify the solutions to the equation

$$x^2 - 2x - 3 = x + 1$$

c. Explain why there are no solutions to the equation

$$x^2 - 2x - 3 = -10$$