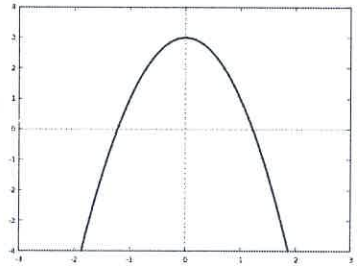
Algebra: Practice Quiz 1

Format and instructions

- The quiz will be 10 questions. (This practice quiz is shorter.) You have the entire 55 minute class period.
- Show all your work in an orderly fashion. Remember: it's not just about getting a correct final answer, it's about being able to communicate how you got that answer.
- The only materials that need to be brought are a pencil or pen. You do not need to bring your own paper to write on.
- Electronic devices, including phones, computers, and calculators, are not allowed during the quiz period.
- You are not allowed to refer to notes or books during the quiz period.
- Please be quiet during the quiz period, so that you are not a distraction to your classmates.
- Individual accommodations may modify these rules.

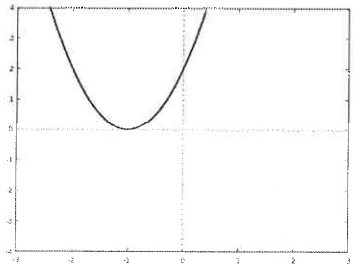
1. Match each graph to the equation which gives it.

D



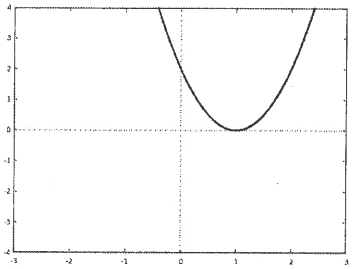
$A(x) = 2(x-1)^2$

B



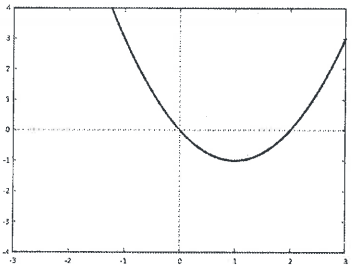
$B(x) = 2(x+1)^2$

A



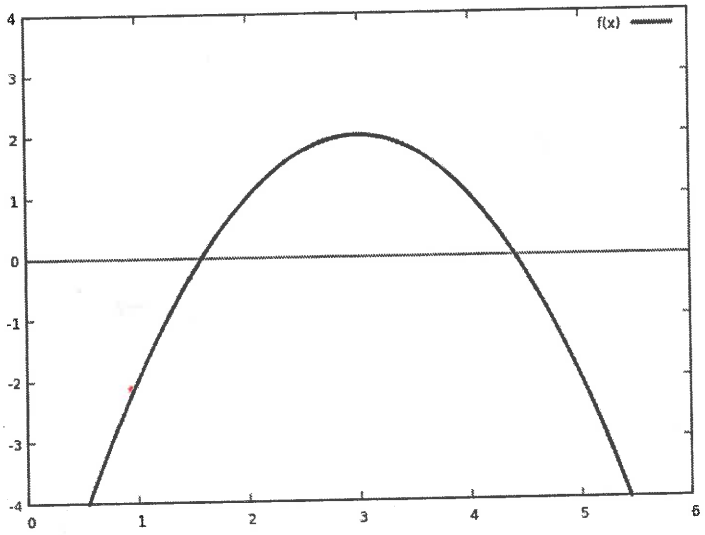
$C(x) = x(x-2)$

C



$D(x) = 3 - 2x^2$

2. A quadratic function $f(x)$ is graphed below.



(a) How many x-intercepts does $f(x)$ have?

2

(b) How many solutions are there to $f(x) = 3$?

0

(c) What is the vertex of $f(x)$?

(3, 2)

3. Find the y-intercept and all x-intercepts of the function

$$y = -2(x - 4)(x + 2).$$

y-int: $y=-2(0-4)(0+2)$

$y=-2(-4)(2)$

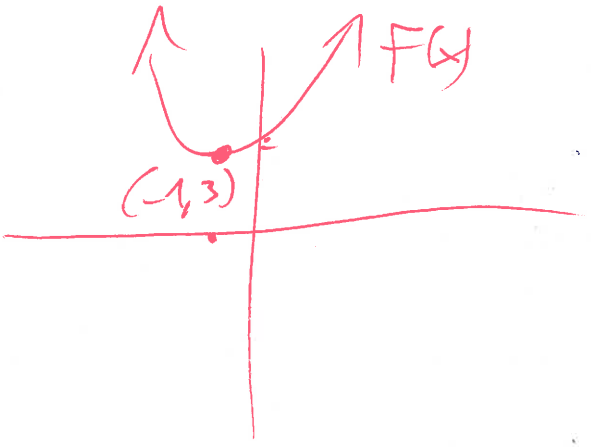
$y=16$

x-int: $x=-2, 4$

4. Find the vertex (both x- and y-coordinates) of the following function, and sketch a graph of it. Identify the vertex on your graph.

$$f(x) = 2(x+1)^2 + 3$$

vertex: $(-1, 3)$



5. Find the vertex (both x- and y-coordinates) of the following function. Is the graph oriented upward or downward?

$$y = -x^2 - 8x + 4$$

vertex @ $x = \frac{8}{-2} = -4$

$y = -(-4)^2 - 8(-4) + 4$

$= -16 + 32 + 4$

$= 20$

vertex $(-4, 20)$

oriented downward

6. Use factoring to find the x-intercepts of the function

$$y = x^2 + 5x - 24.$$

You can use this table of how to factor 24 to help.

	factorization
24 =	1×24
	2×12
	3×8
	4×6

$y = (x+A)(x+B)$

need $A - B = 5$

$8 - 3$ works

$y = (x+8)(x-3)$

x-ints: $x = -8, 3$