

### 4.3.D1 • Intro to Quadratic Functions

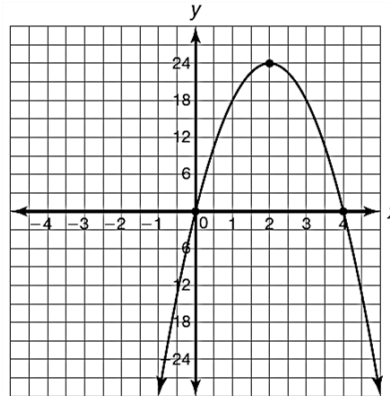
Identify the vertex,  $x$ -intercepts,  $y$ -intercept, and axis of symmetry of each quadratic function.

1.

$x$	$f(x)$
-6	0
-4	4
-2	6
-1	6.25
0	6
2	4
4	0
6	-6

Vertex:  
 $x$ -intercepts:  
 $y$ -intercept:  
 Axis of symmetry:

2.



Vertex:  
 $x$ -intercepts:  
 $y$ -intercept:  
 Axis of symmetry:

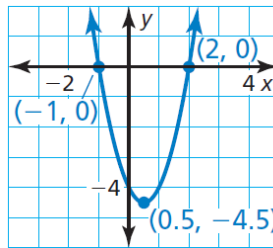
Consider the following quadratic functions:

$$f(x) = 0.5x^2 - x - 4$$

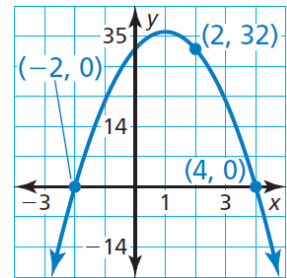
$$f(x) = 0.5(x - 1)^2 - 4.5$$

$$f(x) = 0.5(x + 2)(x - 4)$$

$p(x) =$



$q(x) =$



$$g(x) = -3x^2 + 36x - 81$$

$$g(x) = -3(x - 6)^2 + 27$$

$$g(x) = -3(x - 9)(x - 3)$$

$h(x) =$

$x$	2	4	6	8	10
$y$	12	0	-4	0	12

- Which functions have the same  $x$ -intercepts?
- Which functions have the same  $y$ -intercept?
- Which function has the largest maximum value ( $y$ -coordinate of the vertex)?
- Which functions have an  $x$ -intercept of 4?
- Which functions have axis of symmetry of  $x = 6$ ?
- Which functions have the same minimum value ( $y$ -coordinate of the vertex)?
- Which function has the smallest  $y$ -intercept?
- Does the function  $g(x)$  open up or open down?

Identify the indicated characteristics of the quadratic function.

11.  $y = -2(x + 1)(x + 4)$

X-INTERCEPTS:  
 CONCAVITY: UP DOWN

12.  $y = 2(x - 75)^2 - 92$

VERTEX:  
 CONCAVITY: UP DOWN

13.  $y = -0.3x^2 - 3x + 6$

Y-INTERCEPT:  
 CONCAVITY: UP DOWN

Identify the  $x$ -intercepts and then match the quadratic function, given in its intercept form, to its graph.

14.  $y = (x + 5)(x + 3)$

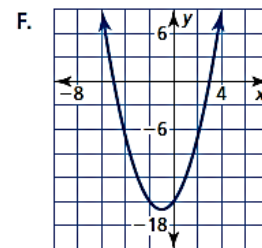
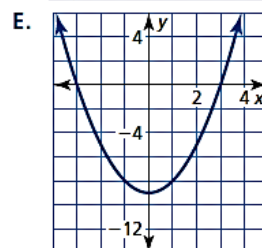
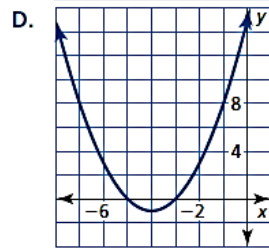
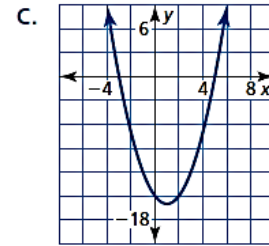
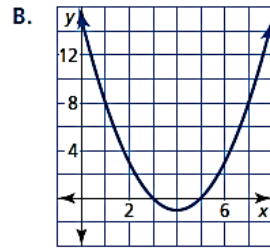
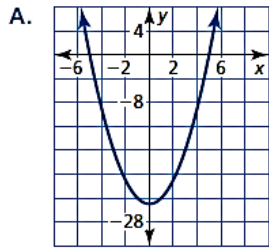
15.  $y = (x + 5)(x - 3)$

16.  $y = (x - 5)(x + 3)$

17.  $y = (x - 5)(x - 3)$

18.  $y = (x + 5)(x - 5)$

19.  $y = (x - 3)(x + 3)$



Identify the vertex of the quadratic function and then match the function with its graph.

20.  $g(x) = (x + 3)^2$

21.  $g(x) = -(x - 4)^2 + 3$

22.  $g(x) = 2(x - 4)^2 - 1$

23.  $g(x) = x^2 - 3$

24.  $g(x) = -\frac{1}{2}(x + 3)^2 + 4$

25.  $g(x) = (x - 3)^2$

26.  $g(x) = -(x + 3)^2 + 4$

27.  $g(x) = 2(x - 1)^2 - 4$

