

**LESSON**  
**2-1**

# Practice A

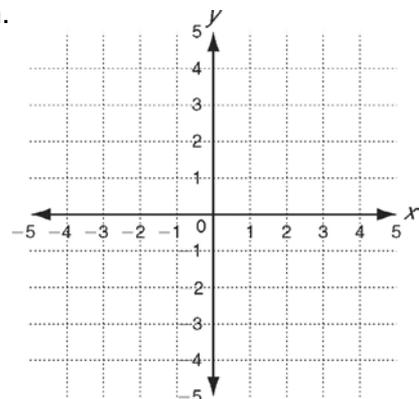
## Using Transformations to Graph Quadratic Functions

Graph the quadratic function by using a table.

1.  $f(x) = x^2 - 3$

- Complete the table to find ordered pairs for the function.
- Plot the ordered pairs on the coordinate plane.

| $x$ | $f(x) = x^2 - 3$     | $(x, f(x))$ |
|-----|----------------------|-------------|
| -2  | $f(-2) = (-2)^2 - 3$ | $(-2, 1)$   |
| -1  |                      |             |
| 0   |                      |             |
| 1   |                      |             |
| 2   |                      |             |



The quadratic parent function is  $f(x) = x^2$ . Its graph is a parabola with its vertex at the origin  $(0, 0)$ . Describe each transformation from the parent function.

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

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3.  $h(x) = (x - 1)^2$

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4.  $g(x) = x^2 + 7$

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5.  $h(x) = \left(\frac{1}{3}x\right)^2$

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

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7.  $h(x) = 5x^2$

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The vertex form of a quadratic function is  $f(x) = a(x - h)^2 + k$ .

8. a. The parent function  $f(x) = x^2$  is translated 2 units left and 3 units up. Write the quadratic function in vertex form.

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- b. Graph the translated function.

