

LESSON
9-2 **Practice C**
Piecewise Functions

Evaluate each piecewise function for $x = -0.4$, $x = 0$, and $x = 6$.

$$1. f(x) = \begin{cases} 8 & \text{if } x \leq 0 \\ x^2 & \text{if } 0 < x < 2 \\ -x^2 & \text{if } 2 \leq x \leq 5 \\ 3x - 1 & \text{if } x > 5 \end{cases}$$

$$2. g(x) = \begin{cases} x^2 - 2 & \text{if } x < 1 \\ -x & \text{if } 1 \leq x \leq 2 \\ 10x & \text{if } 2 < x < 5 \\ x^2 - 2x & \text{if } x \geq 5 \end{cases}$$

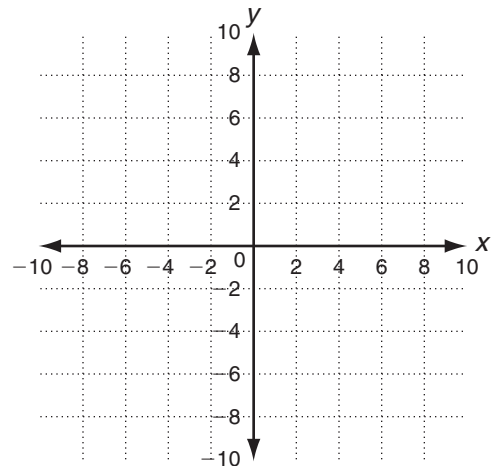
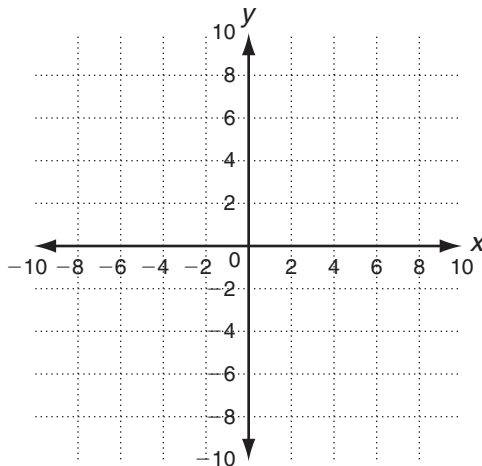
$$3. h(x) = \begin{cases} 9 - 5x & \text{if } x < -0.1 \\ 2 & \text{if } -0.1 \leq x \leq 2 \\ x^3 - x & \text{if } 2 < x \leq 6 \\ 3 - x^2 & \text{if } x > 6 \end{cases}$$

$$4. k(x) = \begin{cases} x - x^2 & \text{if } x \leq 1 \\ 12 & \text{if } 1 < x \leq 2 \\ -6 & \text{if } 2 < x < 4 \\ -x - 8 & \text{if } x \geq 4 \end{cases}$$

Graph each function.

$$5. f(x) = \begin{cases} 3 - 1.5x & \text{if } x < -2 \\ 2x + 2 & \text{if } x \geq -2 \end{cases}$$

$$6. g(x) = \begin{cases} (x - 1)^2 & \text{if } x \leq 1 \\ x + 1 & \text{if } x > 1 \end{cases}$$



Solve.

7. A hardware store will deliver up to 6 items for a \$25 delivery charge. There is a charge of \$4 for each additional item to be delivered.

a. Write a piecewise function for the cost of having x items delivered. _____

b. What is the charge to have 14 items delivered? _____