

**SECTION 9A** **Ready To Go On? Skills Intervention**  
**9-2 Piecewise Functions**

Find these vocabulary words in Lesson 9-2 and the Multilingual Glossary.

**Vocabulary**  
 piecewise function                      step function

**Evaluating a Piecewise Function**

Evaluate each piecewise function at  $x = -2$  and  $x = 6$ .

A.  $f(x) = \begin{cases} 4x - 2 & \text{if } x < 6 \\ x^3 + 1 & \text{if } x \geq 6 \end{cases}$

Evaluate the function at  $x = -2$ .

Because  $-2$  \_\_\_\_\_  $6$ , use the rule for  $x$  \_\_\_\_\_  $6$ .

$f(-2) = 4(-2) - \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

Evaluate the function at  $x = 6$ .

Because  $6$  \_\_\_\_\_  $6$ , use the rule for  $x$  \_\_\_\_\_  $6$ .

$f(6) = 6^3 + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

B.  $f(x) = \begin{cases} 7 & \text{if } x \leq -2 \\ x^2 + 3x - 28 & \text{if } -2 < x \leq 6 \\ \sqrt{x + 25} & \text{if } x > 6 \end{cases}$

Evaluate the function at  $x = -2$ .

Because  $-2$  \_\_\_\_\_  $-2$ , use the rule for  $x$  \_\_\_\_\_.

$f(-2) = \underline{\hspace{1cm}}$

Evaluate the function at  $x = 6$ .

Because  $6$  \_\_\_\_\_  $6$ , use the rule for \_\_\_\_\_.

$f(6) = \underline{\hspace{1cm}} + 3(6) - \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

**Graphing Piecewise Functions**

Graph the piecewise function.  $f(x) = \begin{cases} -1 & \text{if } x < 3 \\ 2x - 4 & \text{if } x \geq 3 \end{cases}$

Because the function is divided at  $x = \underline{\hspace{1cm}}$ ,  
 evaluate both branches of the function at  $x = \underline{\hspace{1cm}}$ .

Plot the point  $(3, -1)$  with a/an \_\_\_\_\_ circle  
 and draw a horizontal ray to the \_\_\_\_\_.

Substitute  $x = 3$  into the function  $f(x) = 2x - 4$ .  
 $2(3) - 4 = \underline{\hspace{1cm}}$

Plot the point  $(3, \underline{\hspace{1cm}})$  with a/an \_\_\_\_\_ circle  
 and draw a ray to the \_\_\_\_\_ with a slope of \_\_\_\_\_.

