NAME _____

Module 9 Using Functions
Lesson 2 Evaluating Functions

guided notes

Lesson Objectives

- When a set of ordered pairs is given, determine the output associated with a given input, and determine the input associated with a given output.
- Read and write the function notation $f(x)$.
- Evaluate a function $f(x)$ when a specific value of x is given.
- Use the graph of a function to determine input and output values.

A function is like a machine that uses a rule to create outputs when inputs are entered.

In the ordered pair (x, y), x is the **input**, and y is the **output**.

The **domain** is the set of inputs.

The **range** is the set of outputs.

For questions 1 and 2, use the set of ordered pairs shown below.

$$\{(2, 4), (3, 5), (5, 6), (6, 10), (8, 2), (10, 3)\}$$

1. Find the output associated with an input of 2. **4**
2. Find the input associated with an output of 2. **8**

To read the notation $f(x)$, say **f of x**.

The notation $f(x)$ can be used **interchangably** with y on the left side of an equation.

In the function $f(x) = -2x - 2$, **x** is the input and **–2x – 2** is the output.

The function $k(x) = -4$ is called a **constant** function.

3 Evaluate $t(9)$ if $t(x) = \sqrt{x} - 2x$.

$t(9) =$ **–15**

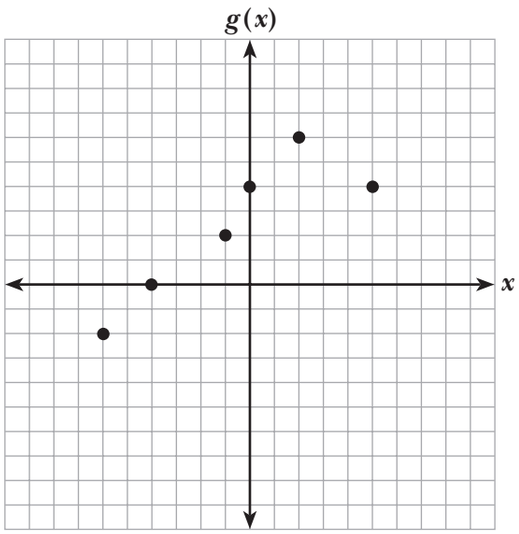
4 Evaluate $p(-1)$ if $p(x) = |x - 4| + 8$.

$p(-1) =$ **13**

5 Evaluate $g(5)$ if $g(x) = \frac{x - 4}{x + 3}$.

$g(5) =$ **$\frac{1}{8}$**

6 Use the graph of $g(x)$ to find $g(0)$, $g(2)$, and $g(-4)$.



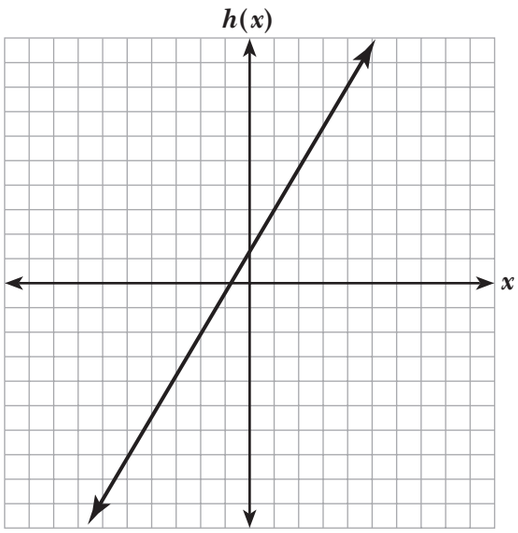
$g(0) =$ **4**

$g(2) =$ **6**

$g(-4) =$ **0**

7 Use the graph of $h(x)$ to find $h(1)$. Then write the equation of the line using function notation.

$h(1) =$ **3** Equation: **h(x) = 2x + 1**



Function Notation

$y = \ldots$

$f(x) = \ldots$

Evaluating Functions

$f(x) = -2x - 2$

$f(3) = -2(3) - 2$

$f(3) = -8$

$(3, -8)$

Determine Function Values Using Graphs