Name: Date: Period:

A **Piecewise Function** is a function defined by at least two equations, each of which applies to a different part of the function's domain. To evaluate, substitute for x into the APPROPRIATE equation and solve.

Example:

$$f(x) = \begin{cases} x - 2 & \text{if } x < 0 \\ x^2 + 1 & \text{if } x \geq 0 \end{cases}$$

Evaluate: [a]   f(-4) | [b]   f(0) | [c]   f(3)

Evaluate the functions based on the following:

$$d(x) = \begin{cases} 3x + 2 & \text{if } x \leq 0 \\ x^2 - 5 & \text{if } x > 0 \end{cases}$$

$$k(x) = \begin{cases} 4x - 4 & \text{if } x \leq 5 \\ x - 12 & \text{if } x > 5 \end{cases}$$

$$h(x) = \begin{cases} 5 & \text{if } x \leq -2 \\ 7 - 2x & \text{if } x > -2 \end{cases}$$

1. d(6) =	2. h(1) =	3. k(7) =	4. k(4) =	5. d(-4) =
6. h(-1) =	7. h(5) =	8. d(0) =	9. k(-2) =	10. d(5)

Evaluate the function for the given value of x.

$$f(x) = \begin{cases} x + 5 & \text{if } x < -2 \\ -4 & \text{if } x \geq -2 \end{cases}$$

1.   f (3) =

2.   f (-4) =

3.   f (-2) =

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

4.   f (-2) =

5.   f (6) =

6.   f (1) =

$$f(x) = \begin{cases} -2x - 4 & \text{if } x \leq 2 \\ 4x - 9 & \text{if } x > 2 \end{cases}$$

7.   f (-4) =

8.   f (8) =

9.   f (2) =

$$f(x) = \begin{cases} x - 1 & \text{if } x \leq -2 \\ 2x - 1 & \text{if } -2 < x \leq 4 \\ -3x + 8 & \text{if } x > 4 \end{cases}$$

10.   f (-1) =

11.   f (-4) =

12.   f (5) =

$$f(x) = \begin{cases} x & \text{if } x \le -1 \\ -x + 4 & \text{if } x > -1 \end{cases}$$

13.   f(-4) =

14.   f(0) =

15.   f(3) =

$$f(x) = \begin{cases} 5 & \text{if } x < -2 \\ \frac{1}{2}x - 6 & \text{if } -2 \le x \le 6 \\ -2x + 10 & \text{if } x > 6 \end{cases}$$

16.   f(-4) =

17.   f(8) =

18.   f(-2) =

In Exercise 19 - 27, evaluate the function.

$$f(x) = \begin{cases} 3x - 1 & \text{if } x \le 1 \\ 1 - 2x & \text{if } x > 1 \end{cases}$$

$$g(x) = \begin{cases} 3x - 1 & \text{if } x \le -3 \\ 2 & \text{if } -3 < x < 1 \\ -3x & \text{if } x \ge 1 \end{cases}$$

19. f(0)	20. f(1)	21. f(5)
22. f(-4)	23. g(0)	24. g(-3)
25. g(1)	26. g(3)	27. g(-5)

Evaluate the function for the given value of x.

$$f(x) = \begin{cases} 3 & \text{if } x \le 0 \\ 2 & \text{if } x > 0 \end{cases}$$

$$g(x) = \begin{cases} x + 5 & \text{if } x \le 3 \\ 2x - 1 & \text{if } x > 3 \end{cases}$$

$$h(x) = \begin{cases} \frac{1}{2}x - 4 & \text{if } x \le -2 \\ 3 - 2x & \text{if } x > -2 \end{cases}$$

28. f(2)	29. f(-4)	30. f(0)	31. f($\frac{1}{2}$)
32. g(7)	33. g(0)	34. g(-1)	35. g(3)
36. h(-4)	37. h(-2)	38. h(-1)	39. h(6)