

AIM: EVALUATING PIECEWISE FUNCTIONS

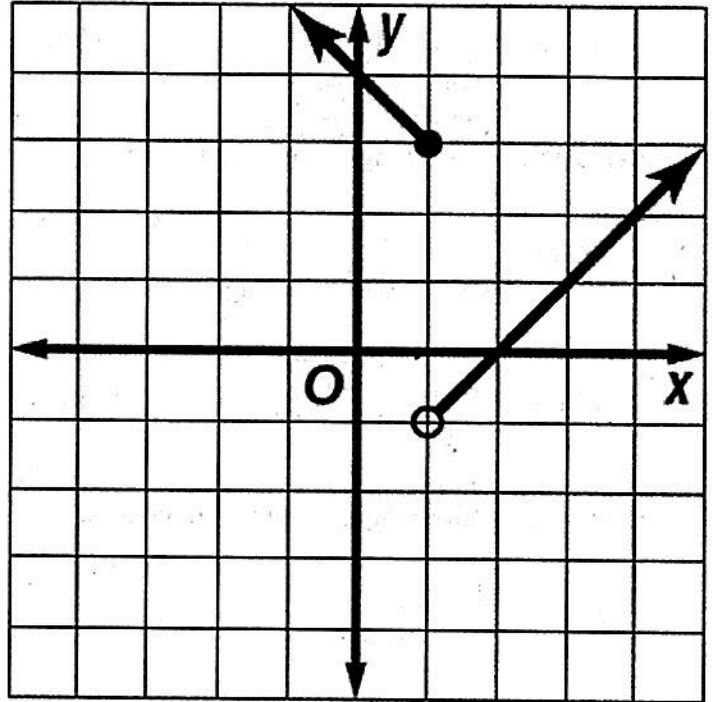
Do now: #1

1. Consider the following function f :

- a. Find $f(3)$ 1
- b. Find $f(1)$ $\{ 3 \}$
- c. Find x if $f(x) = 2$ 4
- d. Find x if $f(x) = -1$ $\{ \}$
- e. Identify the domain in set builder notation.
- f. Identify the range in set builder notation.

$$\{ x | x \in \mathbb{R} \}$$

$$\{ y | -1 < y < \infty \}$$

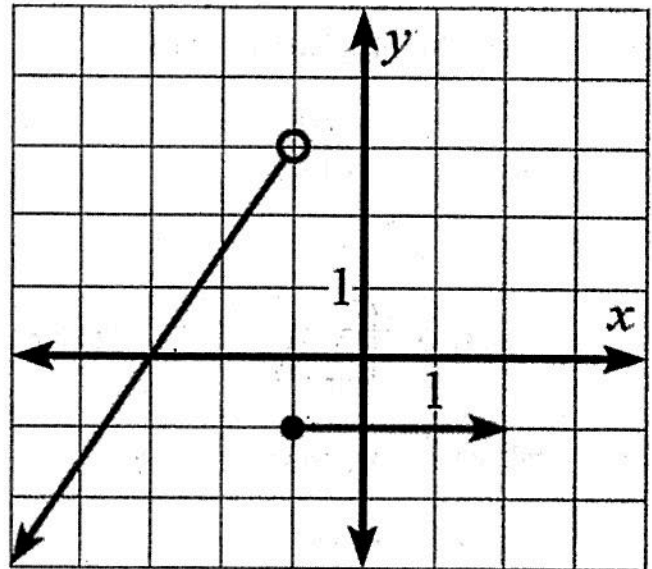


2. Consider the following function g :

- a. Identify the domain in set builder notation.
- b. Identify the range in set builder notation.
- c. Find $g(-1)$ -1
- d. Find $g(-3)$ 0
- e. Find x if $g(x) = 3$ $\{ 3 \}$

$$\{ x | x \in \mathbb{R} \}$$

$$\{ y | -\infty < y < 3 \}$$



* f. Find x if $g(x) = -1$

$$x \geq -1$$

3. Evaluate the following piecewise function

$$f(x) = \begin{cases} -x & \text{if } x < 0 \\ x+1 & \text{if } x \geq 0 \end{cases} \quad \begin{array}{l} y = -x \\ y = x + 1 \end{array}$$

a) Find $f(-3)$ $y = -(-3)$
 $x < 0$ 3

b) Find $f(2)$ $y = 2 + 1$
 $x \geq 0$ 3

c) Find $f(0)$ $0 + 1$
 $x \geq 0$ 1

4. Evaluate the following piecewise function

$$f(x) = \begin{cases} x+1 & \text{if } x > 1 \\ 2x & \text{if } x \leq 1 \end{cases} \quad \begin{array}{l} y = x + 1 \\ y = 2x \end{array}$$

a) Find $f(-3)$ -6
 $x \leq 1$

b) Find $f(2)$ 3
 $x > 1$

c) Find $f(1)$ 2
 $x \leq 1$

5. Evaluate the following piecewise function

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

a) Find $f(-3)$ -3
 $x < -1$

b) Find $f(-1)$ 4

c) Find $f(0)$ 3

6. Evaluate the following piecewise function

$$h(x) = \begin{cases} 4x-3 & x < 0 \\ 2 & 0 \leq x \leq 2 \\ -2x+8 & x > 2 \end{cases}$$

a) Find $f(-3)$ -15
 $x < 0$

b) Find $f(2)$ 2
 $0 \leq x \leq 2$

c) Find $f(9)$ -10
 $x > 2$

7. Evaluate the following piecewise function

$$f(x) = \begin{cases} x^2 & \text{if } x < 2 \\ 6 & \text{if } x = 2 \\ 10-x & \text{if } x > 2 \text{ and } x \leq 6 \end{cases}$$

a) Find $f(2)$ 6

b) Find $f(-5)$ 25

c) Find $f(9)$ { }