

3.6 Functions

Name _____

Decide if the mapping represents a function or not a function.	
<p>1.</p> $1 \longrightarrow 3$ $2 \longrightarrow 4$ $3 \longrightarrow 5$ $4 \longrightarrow 6$	<p>2.</p> $2 \longrightarrow 1$ $1 \longrightarrow \frac{1}{2}$ $0 \longrightarrow 0$ $-1 \longrightarrow -\frac{1}{2}$ $-2 \longrightarrow -1$
<p>3.</p> $0 \longrightarrow 1$ $1 \longrightarrow 3$ $-1 \begin{cases} \longrightarrow -1 \\ \longrightarrow 1 \end{cases}$	<p>4.</p> $0 \longrightarrow 0$ $1 \begin{cases} \longrightarrow 1 \\ \longrightarrow -1 \end{cases}$ $4 \begin{cases} \longrightarrow 2 \\ \longrightarrow -2 \end{cases}$
<p>5.</p> $x \longrightarrow y$ $1 \longrightarrow 8$ $4 \begin{cases} \longrightarrow 6 \\ \longrightarrow 8 \end{cases}$	<p>6.</p> $x \longrightarrow y$ $1 \longrightarrow -5$ $4 \begin{cases} \longrightarrow -3 \\ \longrightarrow 8 \end{cases}$
<p>7. $\{(0, 3), (1, 4), (2, 5), (1, 2), (2, 0)\}$</p>	<p>8. $\{(-2, -7), (-1, 4), (0, 1), (-2, 2), (2, 3)\}$</p>
<p>9. $\{(-3, 3), (-2, 2), (-1, 1), (0, 0), (1, 1)\}$</p>	<p>10. $\{(-2, -7), (-1, -4), (0, -1), (1, 2), (2, 5)\}$</p>
<p>Answers: 1. function; 3. not a function; 5. function; 7. not a function; 9. function</p>	

Thinking of x as the input value to the function, describe what the function does to the input.	
11. $f(x) = 3x$	12. $f(x) = x + 8$
13. $f(x) = -5(x+2)$	14. $f(x) = 4x - 1$
Using x to represent the input value, write an algebraic expression for the function	
15. This function multiplies the input value by negative four.	16. This function subtracts eight from the input value.
17. This function cubes the input value and then subtracts four from the result.	18. This function subtracts two from the input value and then multiplies the result by nine.
Answers: 11. This function multiplies the input by 3; 13. This function adds 2 to the input and multiplies the result by -5 ; 15. $f(x) = -4x$; 17. $f(x) = x^3 - 4$	

Using the given functions, evaluate the functions at the given values.

$$f(x) = 2x - 3 \quad g(x) = x^2 + 2x \quad h(x) = \frac{x+1}{3}$$

19. $f(7)$

20. $f(4)$

21. $g(0)$

22. $g(-3)$

23. $h(-7)$

24. $h(0)$

25. $f(1.5)$

26. $f(-1.2)$

Answers: 19. $f(7) = 11$; 21. $g(0) = 0$; 23. $h(-7) = -2$; 25. $f(1.5) = 0$