

**TABLES**

x	y
3	1
-2	-4
0	2
3	6

Domain: -2, 0, 3  
 Range: -4, 1, 2, 6  
 Function? no

**ORDERED PAIRS**

{(-1, 2), (0, 5), (2, 7)}

Domain: -1, 0, 2  
 Range: 2, 5, 7  
 Function? yes

**MAPPINGS**

Domain: -7, 0, 3  
 Range: 1, 2  
 Function? yes

Ways to Represent  
**RELATIONS**

**GRAPHS**

Domain:  $-4 \leq x \leq 1$   
 Range:  $-2 \leq y \leq 3$   
 Function? no

**EQUATIONS**

$y = x^2 - 1$

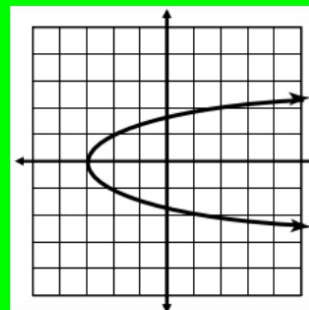
Domain:  $-\infty \leq x \leq \infty$   
 Range:  $y \geq -1$   
 Function? yes

$\geq$  up  
 $\leq$  down

## Function RECAP

### True or False

- A relation is a function if the y-values do not repeat. **F**
- $\{(-4, -1), (-3, -1), (-2, -3), (-1, 0), (-3, 2)\}$  is a function. **F**
- The vertical line test determines whether or not a graph represents a function **T**
- The graph below is a function. **F**



## FUNCTION NOTATION

Equations can be written in a form called function notation.  
We use this as a quick way to evaluate functions for a given input.

Example:  $y = 2x - 8$   $\rightarrow$   $f(x) = 2x - 8$   
"f of x"  
This is read as f of x

1  $f(x) = x + 7$

a.  $f(5) = 5 + 7$

b.  $f(-1) = -1 + 7$

c.  $f(-3) = -3 + 7$

$f(5) = 12$

$f(-1) = 6$

$f(-3) = 4$

2  $g(x) = 3x - 8$

a.  $g(1) = 3(1) - 8$

b.  $g(-3) = 3(-3) - 8$

c.  $g(0) = 3(0) - 8$

$g(1) = -5$

$g(-3) = -17$

$g(0) = -8$

$$\textcircled{3} \quad h(x) = \frac{2}{3}x - 1$$

$$\text{a. } h(-3) = \frac{2}{3}(-3) - 1 = -3$$

$$\text{b. } h(0) = \frac{2}{3}(0) - 1 = -1$$

$$\text{c. } h(9) = \frac{2}{3}(9) - 1 = 5$$

$$\textcircled{4} \quad f(x) = x^2 - x$$

$$20 = \text{a. } f(-4) = (-4)^2 - (-4)$$

$$2 = \text{b. } f(-1) = (-1)^2 - (-1)$$

$$42 = \text{c. } f(7) = (7)^2 - (7)$$

$$\textcircled{5} \quad h(x) = 3x^2 + 7$$

$$55 = \text{a. } h(-4) = 3(-4)^2 + 7$$

$$19 = \text{b. } h(-2) = 3(-2)^2 + 7$$

$$7 = \text{c. } h(0) = 3(0)^2 + 7$$

$$\textcircled{6} \quad f(x) = -x^2 + 6x - 4$$

$$\text{a. } f(-3)$$

$$\text{b. } f(-1)$$

$$\text{c. } f(5)$$

$$-(-3)^2 + 6(-3) - 4 = -31$$

$$-(-1)^2 + 6(-1) - 4 = -11$$

$$-(5)^2 + 6(5) - 4 = 1$$

$$\textcircled{\#10} \quad g(x) = |x - x^2|$$

$$g(4) = |(4) - (4)^2|$$

$$= |4 - 16|$$

$$= |-12|$$

$$g(4) = 12$$

2<sup>nd</sup> → 0: Catalog  
abs