

**1F Function Notation - "f(x)"** Goal • Use function notation.

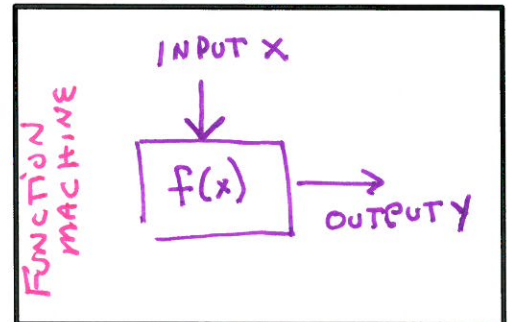
**VOCABULARY Using Function Notation –**

□ **Function notation** is the way a **function** is written. It is meant to be a simple way of giving information about the **function** without a rather lengthy written explanation.

- The most popular **function notation** is  $f(x)$ .

**Example:  $f(x) = 3x + 1$**

- **f(x)...**
  - is read "**f of x**"
  - the input is "**x**"
  - the output is "**y**"
  - $f(x)$  is the same as the variable (**y**)



**EXAMPLE 1:** Write the functions using function notation:

- a) Write the function " $y = 5x - 10$ " in function notation: " **$f(x) = 5x - 10$** "
- b) Write the function " $y = x$ " in function notation: " **$f(x) = x$** "
- c) Write the function " $y = 5$ " in function notation: " **$f(x) = 5$** "

**EXAMPLE 2:** Evaluate a function for given domain values:

- a) Evaluate the function  **$f(x) = 5x - 1$**  for the domain value of 3.

<b><math>f(3) = 5(3) - 1</math></b>	show substitution. $x = $ <b>3</b>
<b><math>f(3) = 14</math></b>	Evaluate
<b>=</b>	Write answer using function notation.

- b) Evaluate the function  **$f(x) = 5x - 1$**  for the domain values of 0, 1, 2. Write answers using function notation.

<b>X</b>	<b>Show work</b>	<b>Answer in function notation.</b>
<b>0</b>	<b><math>f(0) = 5(0) - 1</math></b>	<b><math>f(0) = -1</math></b>
<b>1</b>	<b><math>f(1) = 5(1) - 1</math></b>	<b><math>f(1) = 4</math></b>
<b>2</b>	<b><math>f(2) = 5(2) - 1</math></b>	<b><math>f(2) = 9</math></b>

- c) Evaluate the function  **$f(x) = 10x$**  for the domain values of 0, 5, 10. Write answers using function notation.

<b>X</b>	<b>Do work mentally</b>	<b>Answer in function notation.</b>
<b>0</b>		<b><math>f(0) = 0</math></b>
<b>5</b>		<b><math>f(5) = 50</math></b>
<b>10</b>		<b><math>f(10) = 100</math></b>



# Why Did the Greenhouse Call a Doctor?

Answer each question, then find your answer and cross out the letters above it. When you finish, write the remaining letters in the spaces at the bottom of the page.

In Exercises 1-3, find the domain and range of the relation.

1.

Age (years)	Height (inches)
4	41
8	49
12	58
16	67

2.

x	y
-2	7
-1	4
0	2
1	4
2	7

3.

x	y
-3	4
8	-9
0	-6
-3	7
-5	12

domain: 4, 8, 12, 16 domain: -2, -1, 0, 1, 2 domain: -3, 0, 5  
 range: 41, 49, 58, 67 range: 2, 4, 7 range: 4, -9, -6, 7, 12

In Exercises 4-7, find the indicated values for the function.

4.  $f(x) = 4x - 7$   
 a.  $f(3)$  5 b.  $f(-5)$  -27  
 5.  $f(x) = -3x + 10$   
 a.  $f(4)$  -2 b.  $f(-9)$  37  
 6.  $g(x) = x^2 + 5x - 1$   
 a.  $g(6)$  65 b.  $g(-4)$  -5  
 7.  $h(x) = -2x^2 - 3x + 8$   
 a.  $h(5)$  -57 b.  $h(0)$  8

In Exercises 8-13, find the range of the function for the given domain.

8.  $f(x) = 2x + 7$  {5, 18, -5}  $f(5)=17$   $f(18)=43$   $f(-5)=-3$  17, 43, -3  
 9.  $g(x) = 9 - 4x$  {-2, 10, -1} 17, -31, 13  
 10.  $F(x) = 3x^2 - 1$  {2, 4, -3} 11, 47, 26  
 11.  $h(x) = x^2 + 8x - 3$  {1, 5, -2} 6, 62, -15  
 12.  $f(t) = \frac{t^2 + 2t}{t - 5}$  {4, 7, -2} 24, 31, 5, 0  
 13.  $G(n) = -n^2 + 3n + 2$  {5, -3, 0} -8, -16, 2

<del>TH</del> {-2, -1, 0, 1, 2}	<del>HE</del> 8	IT {11, 62, 0}	<del>AT</del> -5	<del>IS</del> {17, 43, -3}	HA -6	<del>RD</del> {-3, 8, 0, -5}
<del>SO</del> {4, -9, -6, 7, 12}	DW 19	<del>HE</del> {-8, -16, 2}	<del>ME</del> 6	<del>LP</del> {11, 47, 26}	<del>TH</del> -2	IN {4, -9, -6, 0, -5}
<del>TO</del> {4, 8, 12, 16}	DO -18	<del>SA</del> {7, 4, 2}	<del>VE</del> -57	WP {6, 47, 2}	<del>UN</del> 65	<del>IT</del> {-24, 31, 5, 0}
AI {-3, 8, 7, 12}	<del>RS</del> -27	<del>SI</del> {17, -31, 13}	<del>DE</del> 37	<del>CK</del> {6, 62, -15}	NS 74	<del>UP</del> {41, 49, 58, 67}

I T H A D A W I N D O W A P A I N S