Problem of the Day:State if the following are functions. Explain why. 4 is a cheating

a.   No there are cheating   X²   b.   c.

Input	Output
3	0
4	7
5	10
4	14
1	25

NO

Function passes VLT
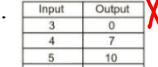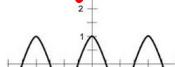
Pla...:
Go over last week's homework
Notes on function notation
More practice with function notation
Objective: We will be able to use function notation to find the value of the range given the domain.
Good luck Volleyball vs. Rusk!!

Function notation-
equations written in function notation use f(x) instead of y

f   of   x

f(x) means that it is a function of x such that each x value has one and only one corresponding y-value.

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same as y

x is the domain, and f(x) is the range

equation   y= 2x + 1

function   f(x)= 2x + 1

Given an x value, we substitute it in and simplify the expression.

Example 1: Find the value of $f(x) = x^2 - 8$

a. f(-2) $(-2)^2 - 8$
                $4 - 8$
                $\boxed{-4}$ or $\boxed{(-2, -4)}$

b. f(7a) $(7a)^2 - 8$
    7a·7a $\boxed{49a^2 - 8}$ or $\boxed{(7a, 49a^2 - 8)}$

Example 2: Find $g(x) = 2x - 9$ for each value.

a. g(6) $2(6) - 9$
               $12 - 9$
               $\boxed{3}$ or $\boxed{(6, 3)}$

b. g(-2) $2(-2) - 9$
               $-4 - 9$
               $\boxed{-13}$ or $\boxed{(-2, -13)}$

c. g(k + 1) $2(k+1) - 9$
               $2k + 2 - 9$ or $\boxed{(k+1, 2k-7)}$
               $\boxed{2k - 7}$

Example 3: If $f(x) = x^2 - 4x + 9$, find each value.

a. f(-3) $(-3)^2 - 4(-3) + 9$
               $9 + 12 + 9$
               $\boxed{30}$ or $\boxed{(-3, 30)}$

b. f(5c) $(5c)^2 - 4(5c) + 9$
               $\boxed{25c^2 - 20c + 9}$ or $\boxed{(5c, 25c^2 - 20c + 9)}$

We can use function notation f(x) to help us graph functions.

To graph-
1. make a T-chart
2. plug in the given domain (or make one up) to the function
3. Graph the ordered pairs

Example 4: Choose a domain to graph the function f(x) = -3x + 4.

X	y
-1	7
0	4
1	1
2	-2

$-3(-1)+4=7$
$-3(0)+4=4$
$-3(1)+4=1$
$-3(2)+4=-2$
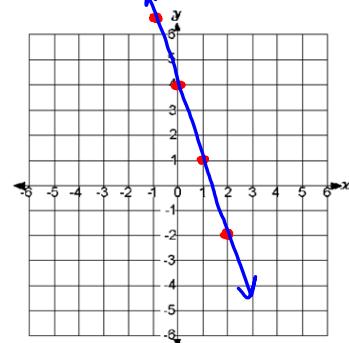
Example 5: Use the domain {-1, 0, 2} to graph the function
$f(x) = 3x^2 - 2x$

X	y
-1	5
0	0
2	8

$3(-1)^2-2(-1)$
$3+2=5$
$3(2)^2-2(2)$
$12-4=8$