

Jan. 10, 2018

Sect. 2-1

Functions

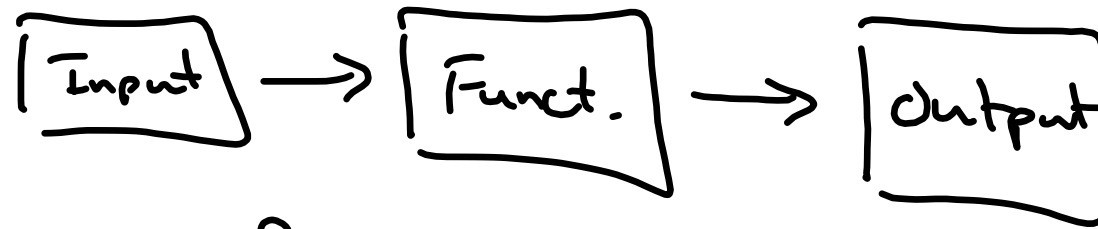
Defn.

Evaluate

Dom/Range

Graphing

Funct.:



$$y = f(x)$$

"eff of ex"

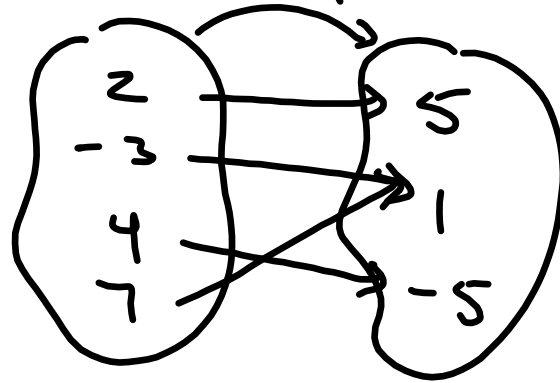
f is just the name

x is the input

y is output

Relation $A : \{ (2, 5), (-3, 1), (4, -5), (7, 1) \}$

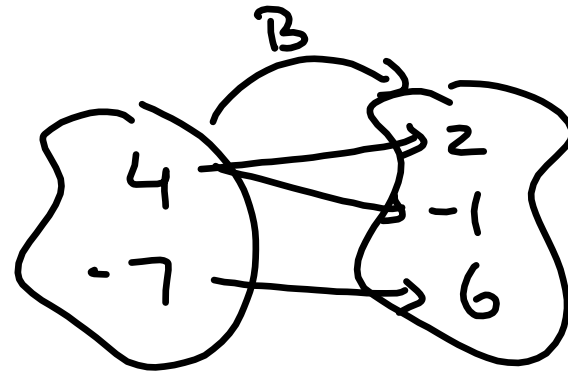
Mapping Diagram



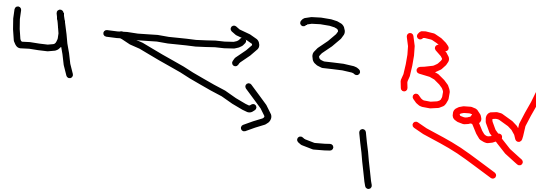
Relation A is
a function.

Funct: For each individual input, there is one individual output.

Try this:



Relation B
is not a
funct.



Most of the time, fncts are represented by equations

$$f(x) = 2x - 3$$

We can evaluate f at many values

$$f(-3) = 2(-3) - 3 = -6 - 3 = -9$$

$$f(0) = 2(0) - 3 = 0 - 3 = -3$$

We can make a table

$$f(x) = 2x - 3$$

x	y
-3	-9
-1	-5
0	-3
2	-1
4	5

Given $g(x) = x^2 + 1$

Find $g(-2)$

$g(3)$

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

$$g(3) = (3)^2 + 1 = 9 + 1 = 10$$

Domain / Range

$$A: \{ (2, 5), (-3, 1), (4, -5), (7, 1) \}$$

$$\text{Dom: } \{ -3, 2, 4, 7 \}$$

$$\text{Range: } \{ -5, 1, 5 \}$$

Find the domain of $f(x) = 2x - 3$

We picked $-3, -1, 0, 2, 4$

These are all in the domain

Could we have picked others?

$5?$ $100?$ $\frac{1}{2}?$ $-0.15?$

We could have picked anything.

So the domain of f is "all real numbers"

$$\text{Let's do } g(x) = x^2 + 1$$

domain: all real $\#$ s.

Let's do $h(x) = \frac{5}{x-2}$

Wait! Pick $x = 2$: $\frac{5}{2-2} = \frac{5}{0}$ **Back!**

2 is not in the domain of h .

Domain: everything except 2

$$x \neq 2$$

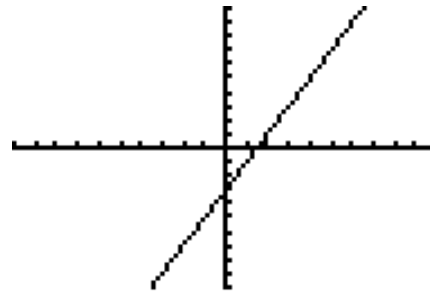
Graphing functions

Graph $f(x) = 2x - 3$

$$Y = 2x - 3$$

Plot1	Plot2	Plot3
Y1 =	2X-3	
Y2 =		
Y3 =		
Y4 =		
Y5 =		
Y6 =		
Y7 =		

Graph



Remember our table?
Look at the TI

Table
Graph

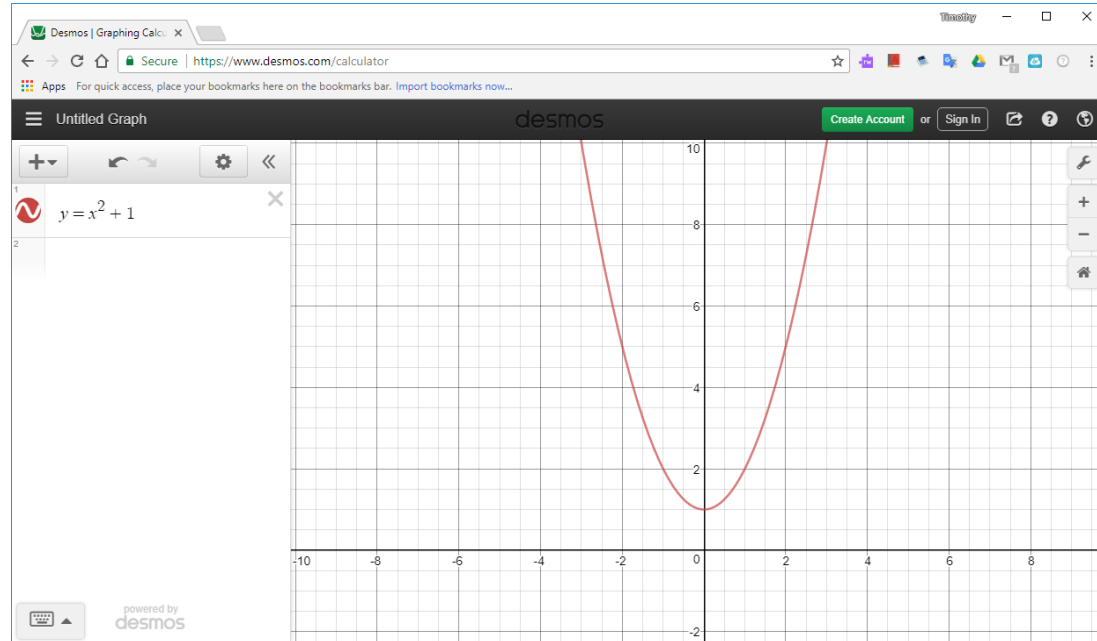
X	Y ₁
3	
2	
1	
0	
-1	
-2	
-3	

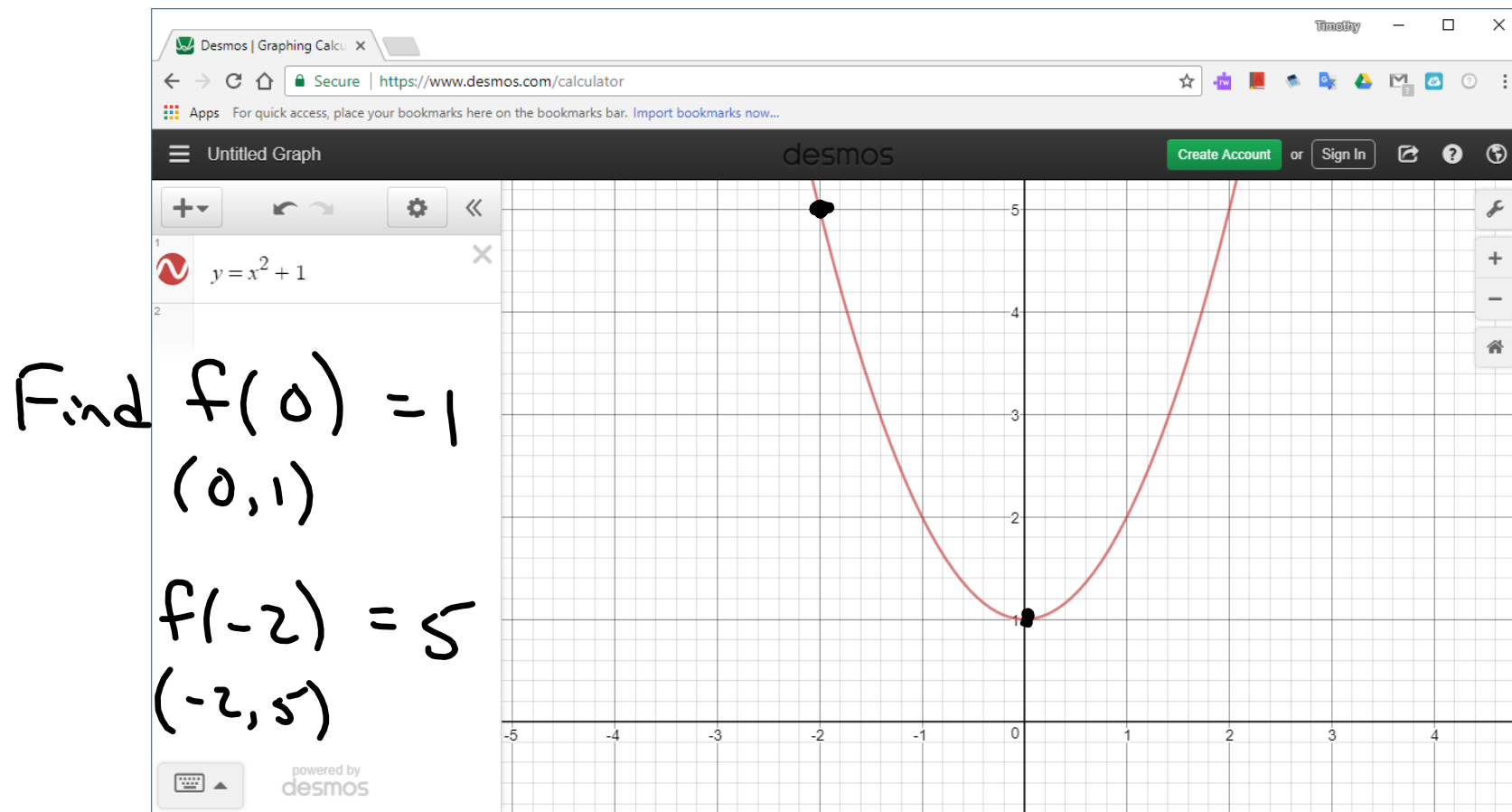
X=3

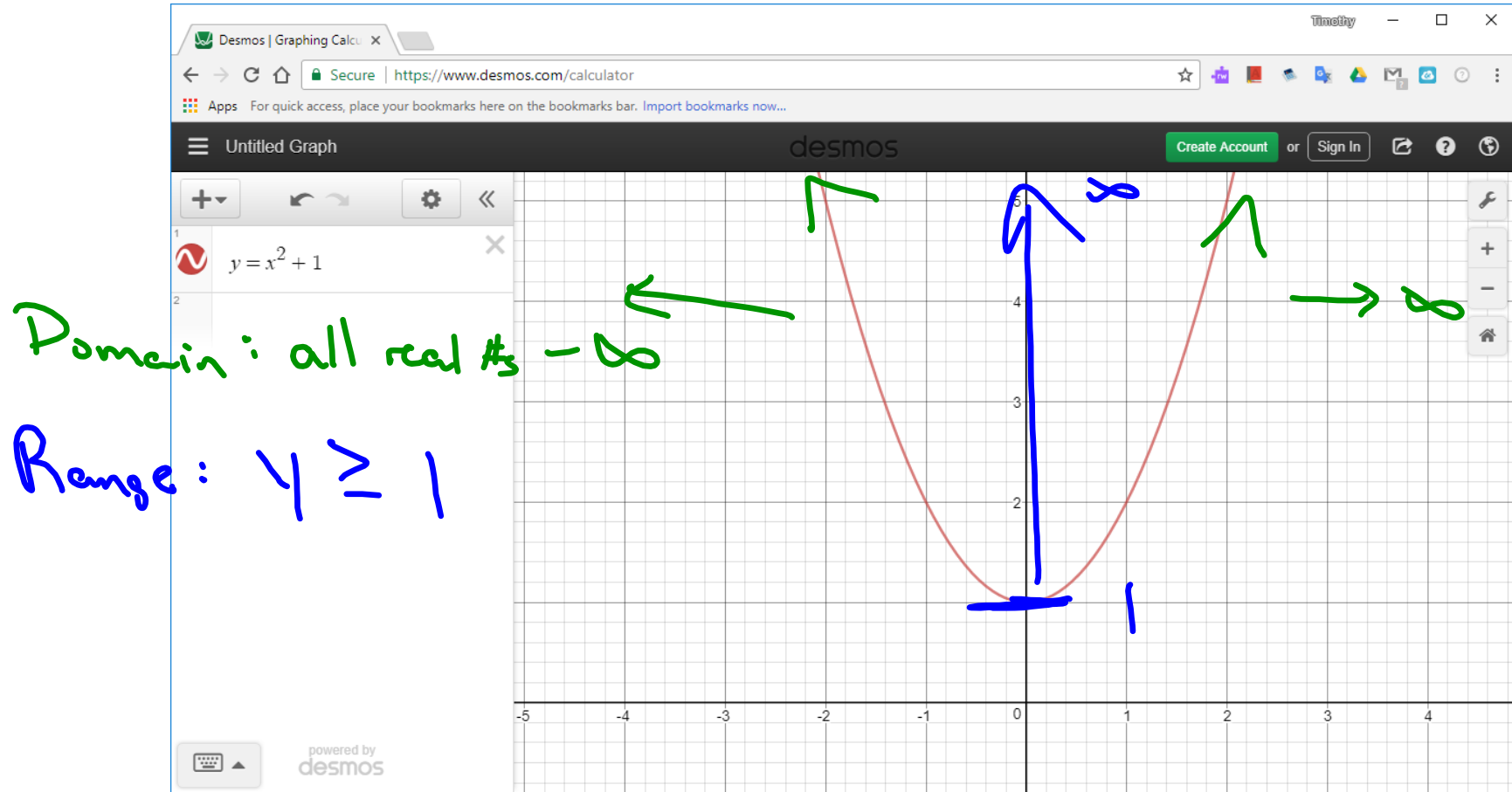
Graph

$$g(x) = x^2 + 1$$

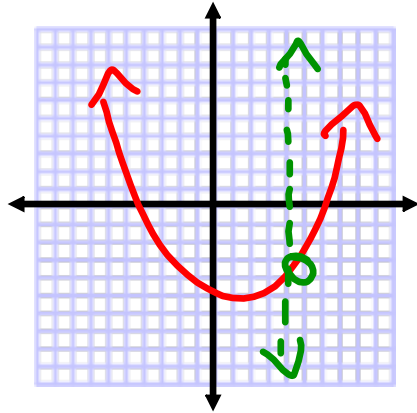
<https://www.desmos.com/>





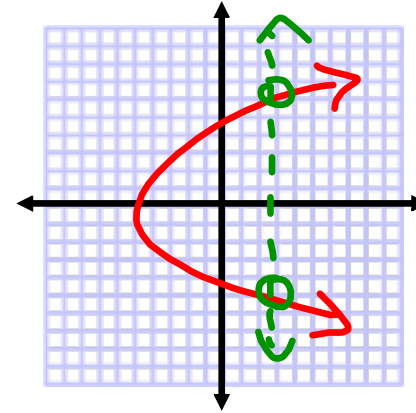


Is the relation a function? (Graphically)



Pass: Yes,
a fnc.

Vertical
Line
Test



Fail: No,
not a fnc.