BE-Algebra 1 | Monday 10-6-08

{Solve for} {Make a T-table} {Graph}

Graph using the "yTg" method:

Note: this could also be called the f(x)Tg method if your equation is a function since $y = f(x)$ for functions.

{most will be in Algebra 1 to Calculus and beyond!!}

① $y - 3x = 1$ This is a function.

② $y - 3x^2 = 1$ This is a function.

- Thursday = Exam 2
- Weds = last day for Q1 redos.
- Saturday = No math help since it is a 3 day weekend

Monday 10-13-08 = Columbus Day

Solution to BE: Assume domain = {ℝ}

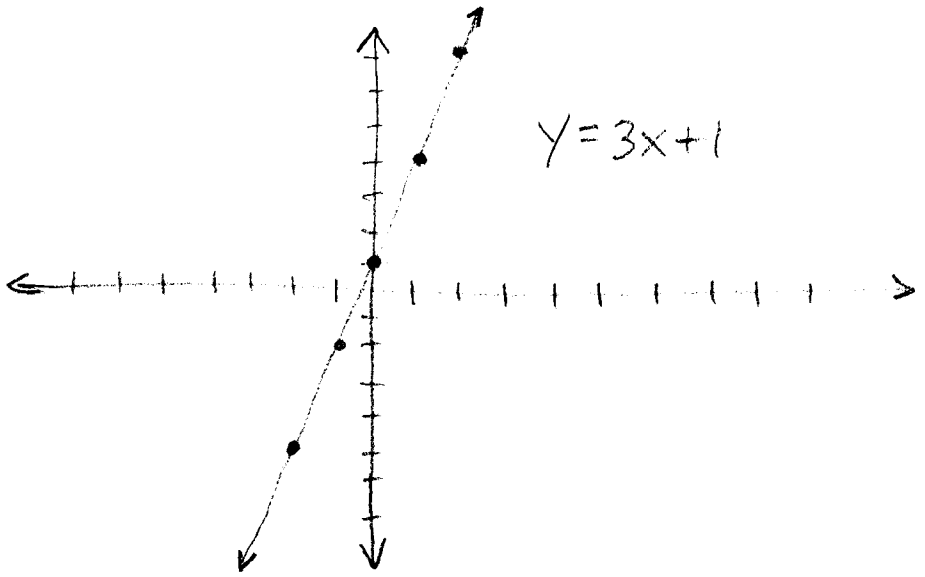
① $y - 3x = 1$

$+3x \quad +3x$

$y = 3x + 1$ or $y = f(x) = 3x + 1$

X	$Y = f(x) = 3x + 1$
−2	$3(-2)+1 = -6+1 = -5$
−1	$3(-1)+1 = -3+1 = -2$
0	$3(0)+1 = 0+1 = 1$
1	$3(1)+1 = 3+1 = 4$
2	$3(2)+1 = 6+1 = 7$

Graph using "Graph Sketcher"

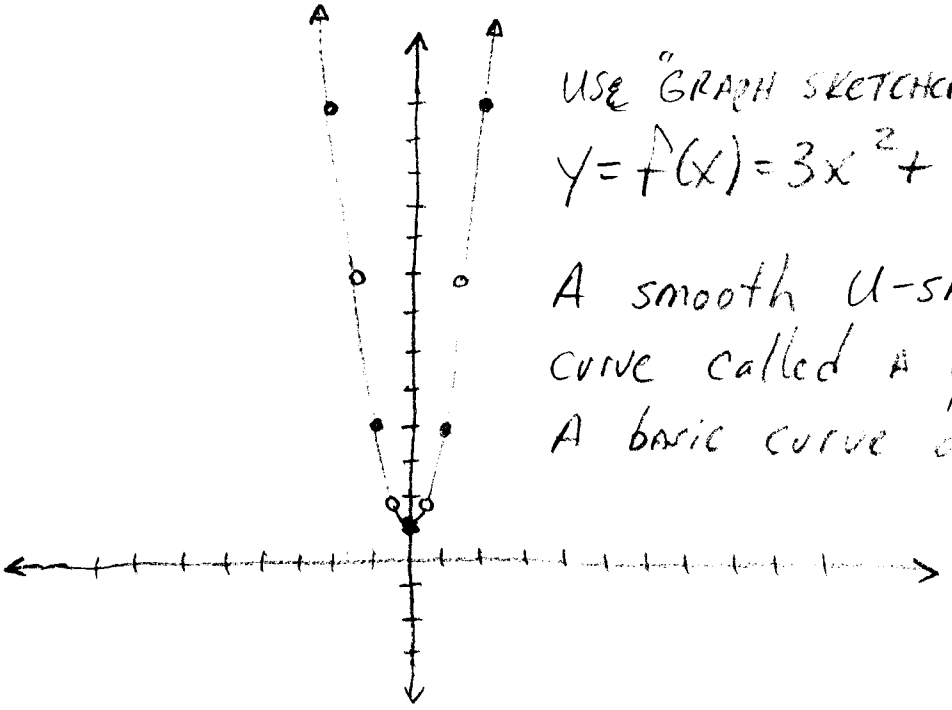


② $y - 3x^2 = 1$

$+3x^2 \quad +3x^2$

$y = 3x^2 + 1$ or $y = f(x) = 3x^2 + 1$

x	$y = f(x) = 3x^2 + 1$
-2	$3(-2)^2 + 1 = 3(4) + 1 = 13$
-1	$3(-1)^2 + 1 = 3(1) + 1 = 4$
0	$3(0)^2 + 1 = 0 + 1 = 1$
1	$3(1)^2 + 1 = 3 + 1 = 4$
2	$3(2)^2 + 1 = 3(4) + 1 = 13$



USE "GRAPH SKETCHER" TO VIEW.

$y = f(x) = 3x^2 + 1$

A smooth U-shaped curve called a PARABOLA. A basic curve of NATURE.

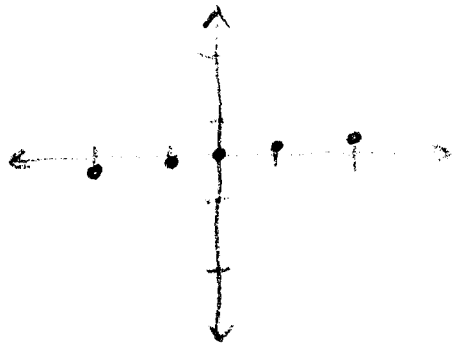
x	$3x^2 + 1$
$\pm \frac{1}{2}$	$3(\frac{1}{2})^2 + 1 = 3(\frac{1}{4}) + 1 = \frac{3}{4} + 1 = \pm 1\frac{3}{4}$
$\pm \frac{3}{2}$	$3(\frac{3}{2})^2 + 1 = 3(\frac{9}{4}) + 1 = \frac{27}{4} + 1 = 6\frac{3}{4} + 1 = 7\frac{3}{4}$
$\pm \infty$	$\pm \infty$

THE POINT: WHEN YOU DO NOT KNOW WHAT THE GRAPH OF YOUR FUNCTION LOOKS LIKE, THE DOMAIN OF $X = \{-2, -1, 0, 1, 2\}$ IS ONLY A "STARTING" DOMAIN. YOU HAVE TO LOOK AT THE RESULTING GRAPH CLOSELY AND DECIDE HOW MANY MORE VALUES OF THE DOMAIN YOU NEED TO CHOOSE, AND WHAT VALUES OF THE DOMAIN ARE BEST TO REVEAL THE SHAPE OF YOUR FUNCTION. A T-TABLE OF $(x, f(x))$ VALUES IS A BASIC TOOL OF ALGEBRA.

GRAPH $y = f(x) = \left(\frac{1}{4}x\right)^3$

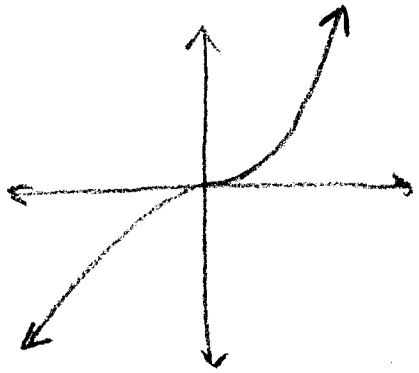
$y = f(x) =$

x	$\left(\frac{1}{4}x\right)^3$
-2	$\left[\frac{1}{4}(-2)\right]^3 = \left[-\frac{2}{4}\right]^3 = \left[-\frac{1}{2}\right]^3 = -\frac{1}{2}\cdot-\frac{1}{2}\cdot-\frac{1}{2} = -\frac{1}{8}$
-1	$\left[\frac{1}{4}(-1)\right]^3 = \left[-\frac{1}{4}\right]^3 = -\frac{1}{4}\cdot-\frac{1}{4}\cdot-\frac{1}{4} = -\frac{1}{64}$
0	$(0)^3 = 0$
1	$\left[\frac{1}{4}(1)\right]^3 = \frac{1}{64}$
2	$\left[\frac{1}{4}(2)\right]^3 = \left[\frac{1}{2}\right]^3 = \frac{1}{8}$



4	$\left[\frac{1}{4}(4)\right]^3 = 1^3 = 1$ use $\pm$?
± 8	$\left[\frac{1}{4}(81)\right]^3 = 2^3 = \pm 8$
$\pm\infty$	$\pm\infty$

$y = \left(\frac{1}{4}x\right)^3$



see GRAPH SKETCHER

Homework:

① Organize notes, Reviews HW 1 → 7 and Quiz 1 → 7 and Exam 1 to prepare for Exam 2.

② Use "Graph Sketcher," START with "bare" functions like

$$y = x$$
$$y = x^2$$
$$y = x^3$$

And graph them. Change the coefficient of x or add/subtract numbers to the x term and see how the graph changes.

Ex $y = x^2$
or $y = 2x^2$
or $y = x^2 + 1$
or $y = (x+1)^2$