Piecewise Notes

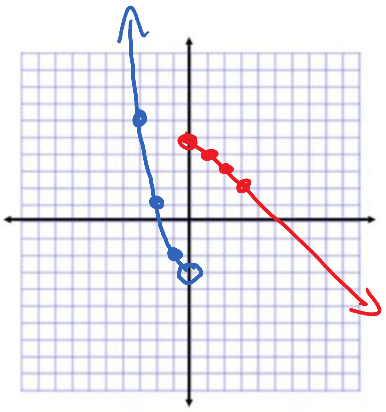
Sunday, August 30, 2015
3:17 PM

Precalculus
1.3 Day 2: Piecewise Functions

Name:
Period:

Big Idea!
A **PIECEWISE FUNCTION** is: a function whose domain is split between multiple Functions

1. Sketch a graph of $f(x) = \begin{cases} -x+5 \text{ if } x \geq 0 \\ x^2 - 3 \text{ if } x < 0 \end{cases}$



$f(x) = -x + 5 \text{ if } x \geq 0$

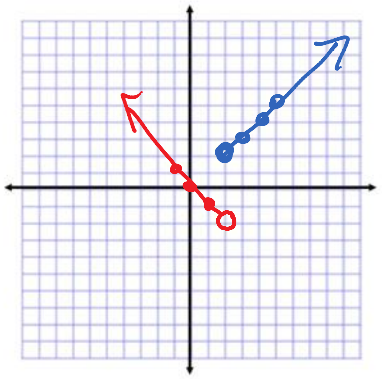
x	f(x)
0	5
1	4
2	3
3	2

$f(x) = x^2 - 3 \text{ if } x < 0$

x	f(x)
0	-3
-1	-2
-2	1
-3	6

open circle

2. Sketch a graph of $g(x) = \begin{cases} x \text{ if } x \geq 2 \\ -x \text{ if } x < 2 \end{cases}$

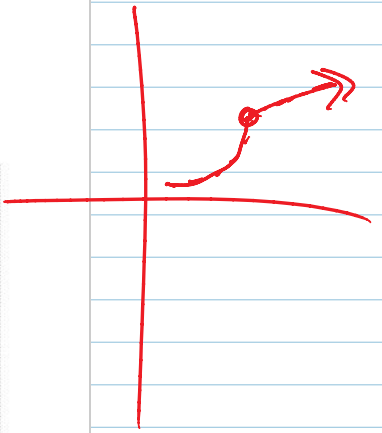


$g(x) = x \text{ if } x \geq 2$

x	g(x)
2	2
3	3
4	4
5	5

$g(x) = -x \text{ if } x < 2$

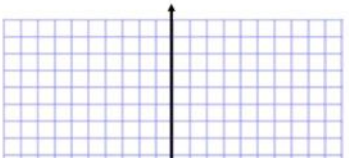
x	g(x)
2	-2
1	-1
0	0
-1	1



Try on your own!

3. Sketch a graph of $f(x) = \begin{cases} -x^2 \text{ if } x \geq 0 \\ x^3 \text{ if } x < 0 \end{cases}$

PEMDAS



$f(x) = -x^2 \text{ if } x \geq 0$

0	0

$f(x) = x^3 \text{ if } x < 0$

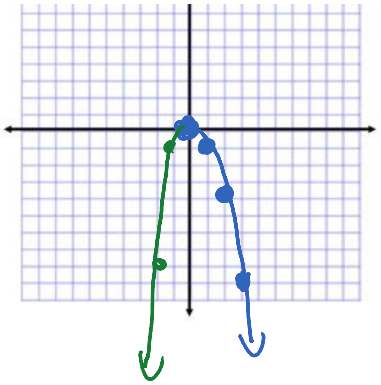
0	0

$x = -3$

$y = x^2$

$y = (-3)^2$

$y = -x^2$



0	0
1	-1
2	-4
3	-9

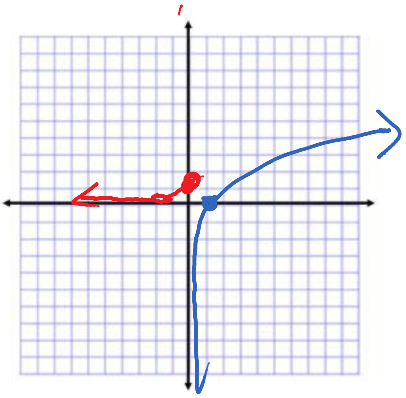
0	0
-1	-1
-2	-8
-3	-27

$y = -x^2$

$y = (-x)^2$

$y = x^2$

4. Sketch a graph of $h(x) = \begin{cases} e^x \text{ if } x \le 0 \\ \ln x \text{ if } x > 0 \end{cases}$



$h(x) = e^x$ if $x \le 0$

0	1
-1	.05

$h(x) = \ln x$ if $x > 0$

1	0
2	.693