PC12 Lesson 1.2 Part I

Monday, September 11, 2017 10:07 AM

1.2 Part I: Reflections

Reflections

Compared to $y = f(x)$

- $y = -f(x)$ is a vertical reflection of $y = f(x)$ over the x-axis.
- $y = f(-x)$ is a horizontal reflection of $y = f(x)$ over the y-axis.

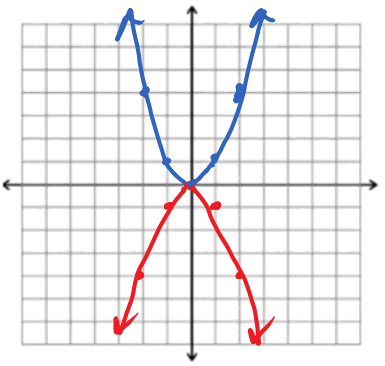
Example 1: Graph $y = x^2$ and $y = -x^2$

x	y
−2	4
−1	1
0	0
1	1
2	4

invariant point

x	y
−2	−4
−1	−1
0	0
1	−1
2	−4

The y-values change



Example 2: Graph $y = \sqrt{x}$ and $y = \sqrt{-x}$

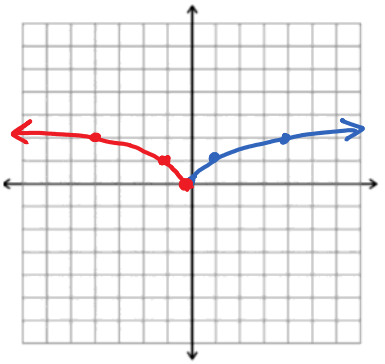
x	y
0	0
1	1
4	2
9	3

Invariant pt.

x	y
0	0
−1	1
−4	2
−9	3

Invariant pt.

the x-values change



Example 3: Describe how the graph $y = 3x - 2$ compares to

a. $y = 3(-x) - 2$ horizontal reflection

b. $-y = 3x - 2$

$\div -1 \quad \div -1$

$y = -(3x - 2)$ vertical reflection

Example 4: Given $f(x) = |x|$, determine the following if $x = 5$

a. $f(x) = |5| =$ 5
b. $-f(x) = -|5| =$ −5 Vert. Ref.
c. $f(-x) = |-5| =$ 5 Hor. Ref.