

Lesson 9 – Reflections of Parent Functions

Objective:

I will investigate when a function reflects over either the x or y-axes.

Reflecting
Functions

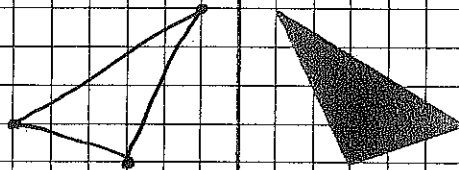
Write the coordinates
of the vertices of the
triangle.

(1,5)
(3,1)
(6,2)

Use the table to write
your original values
and the new values

X	Y	-X	Y
1	5	-1	5
3	1	-3	1
6	2	-6	2

Graph the new points



What did your graph do?

reflected across y-axis

Write the coordinates of the vertices of the triangle.

(1,5)

(3,1)

(6,2)

Use the table to write your original values and the new values

X	Y
1	5
3	1
6	2

X	-Y
1	-5
3	-1
6	-2

Graph the new points

What did your graph do?

reflects across x-axis

Reflecting the Parent Functions

In writing describe what the differences are between the three functions below

$$f(x) = \sqrt{x} \text{ (parent function)}$$

$$f(x) = \sqrt{-x}$$

$$-f(x) = \sqrt{x}$$

$f(x) = \sqrt{x}$ is the parent function, $f(x) = \sqrt{-x}$ means the x-values change, so it reflects across y-axis, $-f(x) = \sqrt{x}$ means the y values change, so it reflects across x-axis

Make tables of values for all three functions above and graph them on the graph in three different colors.

$$f(x) = |x|$$

x	y
-6	6
-4	4
-2	2
0	0
2	2
4	4
6	6

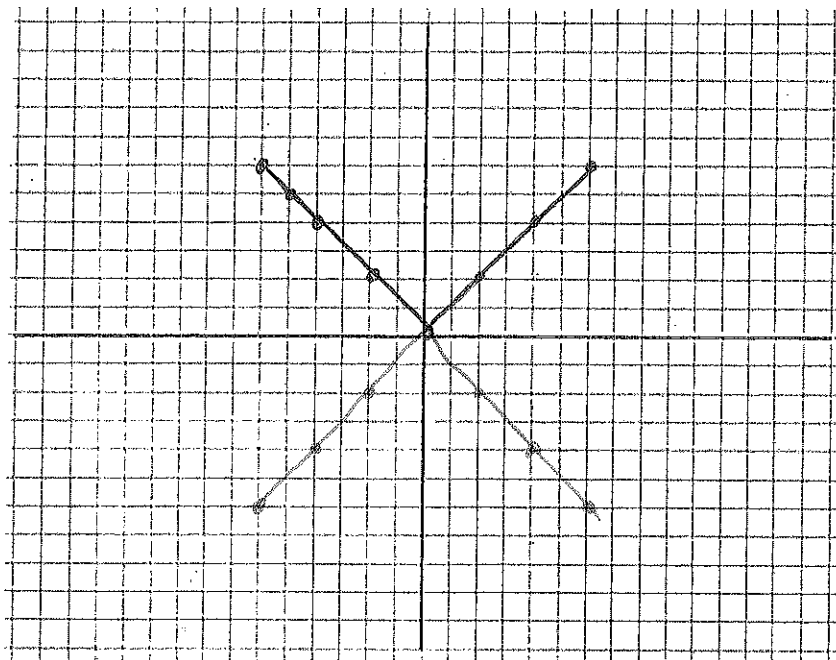
$$f(x) = |-x|$$

x	y
-6	-6 = 6
-4	4
-2	2
0	0
2	2
4	4
6	6

$$f(x) = -|x|$$

x	y
-6	- -6 = -6
-4	-4
-2	-2
0	0
2	- 2 = -2
4	-4
6	-6

reflects across x-axis



How does that relate to other functions?

$g(x) = |x|$ would reflect over the y-axis

$-g(x) = |x|$ would reflect over the x-axis

$-k(x) = x^2$ would reflect over the x-axis

In words describe the transformations that are happening

1). $j(x) = (-x - 4) + 6$

right 4
up 6
reflect across y axis

2). $-r(x) = |x| - 2$

down 2
reflects across x-axis