

Linear Functions

$f(x) = x$

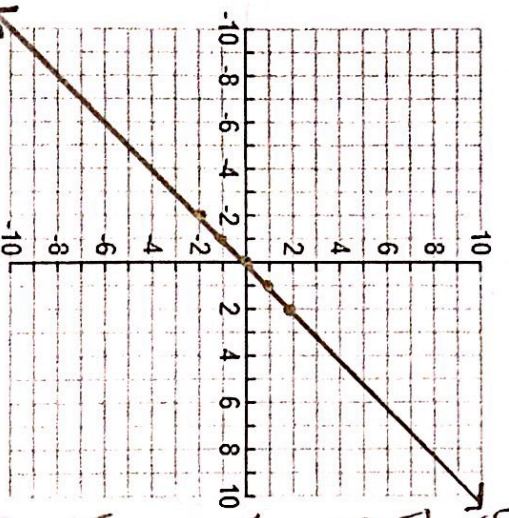
$m = 1$
y-int: $(0, 0)$

Domain: $(-\infty, +\infty)$
Range: $(-\infty, +\infty)$

Vertical Lines have a domain of 1#

Horizontal Lines have a domain of 1#

$f(-x) = -x$
odd



Absolute Value Functions

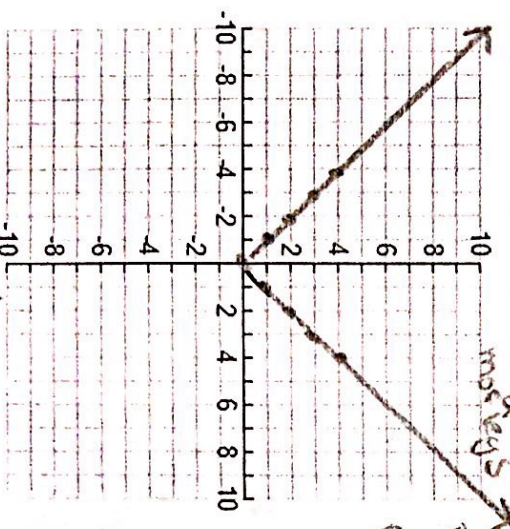
$f(x) = |x|$

Vertex: $(0, 0)$

Domain: $(-\infty, +\infty)$
Range: $[0, +\infty)$

passes

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



Quadratic Functions

$f(x) = x^2$

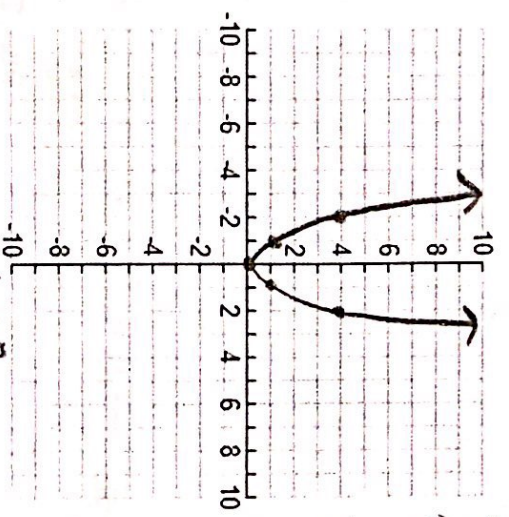
Vertex: $(0, 0)$

Domain: $(-\infty, +\infty)$
Range: $[0, +\infty)$

From Vertex

- $\leftarrow 1$ $\uparrow 1$
- $\leftarrow 2$ $\uparrow 4$
- $\leftarrow 3$ $\uparrow 9$

$f(-x) = (-x)^2$
 $f(-x) = x^2$
even



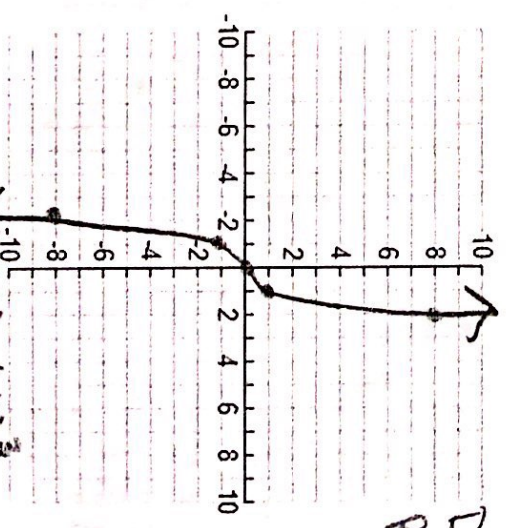
Cubic Functions

$f(x) = x^3$

Point of Inflection: $(0, 0)$

Domain: $(-\infty, +\infty)$
Range: $(-\infty, +\infty)$

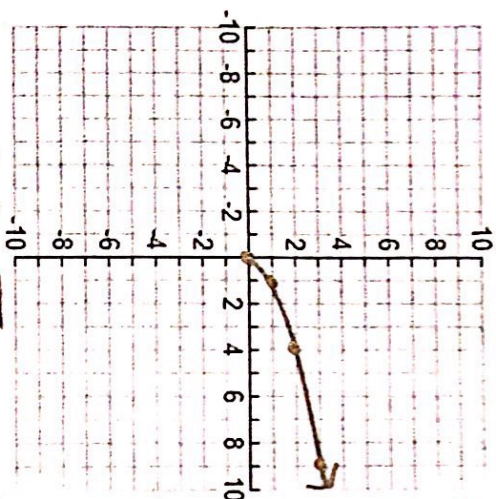
$f(-x) = (-x)^3$
 $f(-x) = -x^3$ odd



Square Root Functions

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

End Point: $(0, 0)$



Domain: $[0, +\infty)$

Range: $[0, +\infty)$

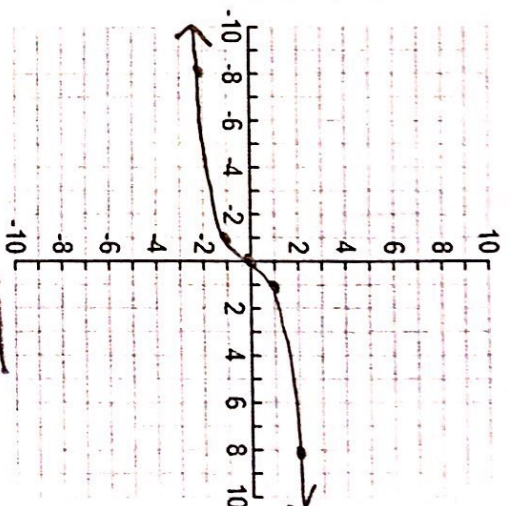
$$f(-x) = \sqrt{-x}$$

neither

Cube Root Functions

$$f(x) = \sqrt[3]{x}$$

Point of Inflection $(0, 0)$



Domain: $(-\infty, +\infty)$

Range: $(-\infty, +\infty)$

$$f(-x) = \sqrt[3]{-x}$$

$$f(-x) = -\sqrt[3]{x}$$

odd

Even and Odd Functions

Even:

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

* All signs stay the same

Odd:

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

* All signs change

Rational Functions

$$f(x) = \frac{1}{x}$$

VA: $x = 0$

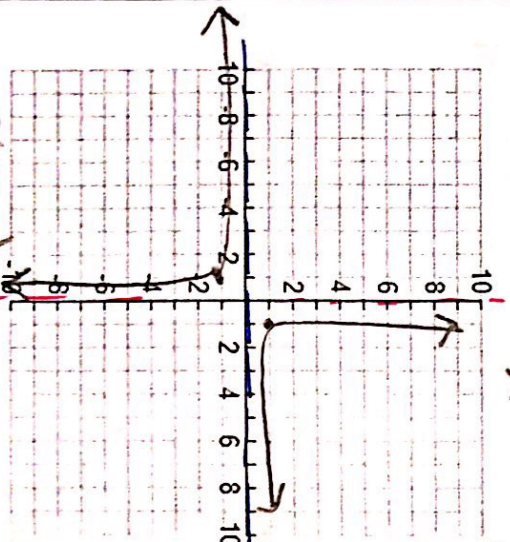
HA: $y = 0$

Domain:

$(-\infty, 0) \cup (0, +\infty)$

Range:

$(-\infty, 0) \cup (0, +\infty)$



$$f(-x) = \frac{1}{-x}$$

odd