

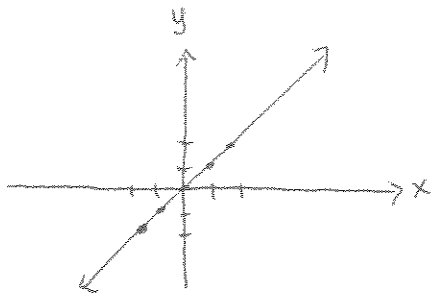
1.6 - A Library of Parent Functions

①

→ We'll be doing a lot of graphing this semester, and often times those graphs will be translations ~~and~~ and/or reflections of a few basic functions that we should be familiar with.

↳ We call these basic functions parent functions

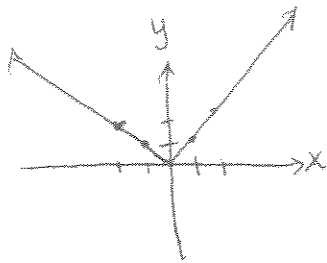
1) Identity function: $f(x) = x$



Domain: \mathbb{R}
Range: \mathbb{R}

intercept: $(0,0)$

2) Absolute Value function: $f(x) = |x|$

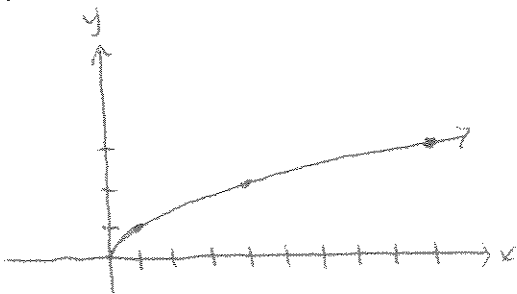


→ even function

Domain: \mathbb{R}
Range: $[0, \infty)$

intercept: $(0,0)$

3) Square root function: $f(x) = \sqrt{x}$

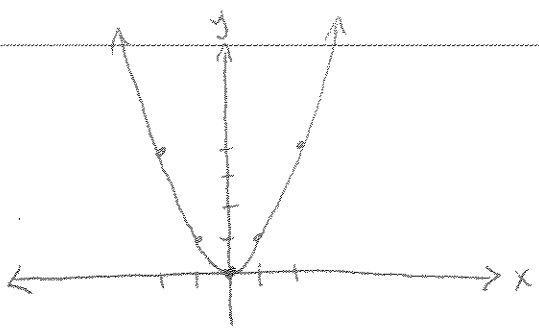


Domain: $[0, \infty)$

Range: $[0, \infty)$

intercept: $(0,0)$

4) Quadratic Function: $f(x) = x^2$



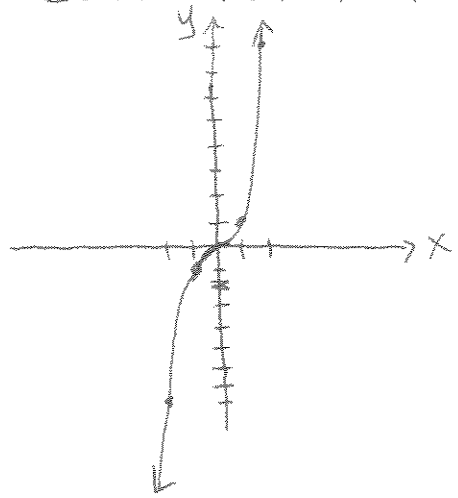
→ even function

Domain: \mathbb{R}

Range: $[0, \infty)$

Intercept: $(0,0)$

5) Cubic Function: $f(x) = x^3$



→ odd function

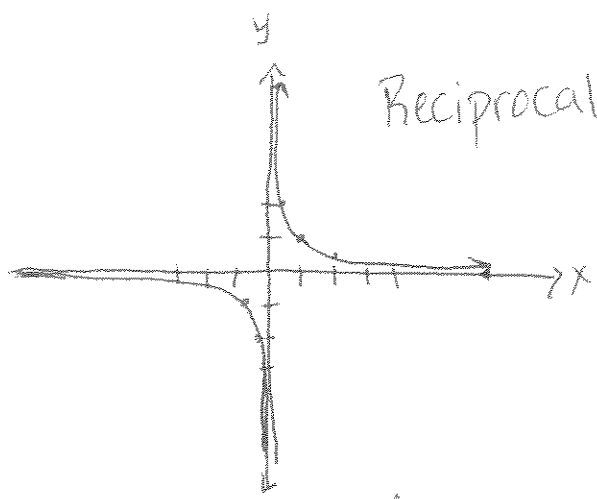
Domain: \mathbb{R}

Range: \mathbb{R}

Intercept: $(0,0)$

6)

Reciprocal Function: $f(x) = \frac{1}{x}$



→ odd function

Domain: $(-\infty, 0) \cup (0, \infty)$

Range: $(-\infty, 0) \cup (0, \infty)$

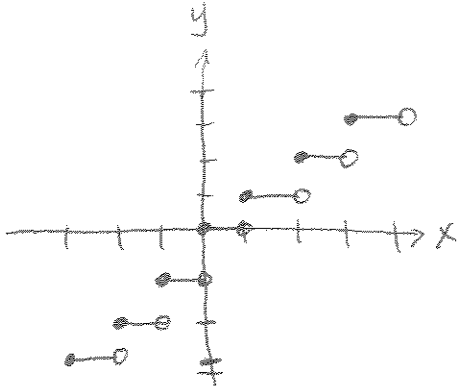
No intercepts

→ and

↳ This final one is the strangest and least important.

(3)

7) Greatest Integer function: $f(x) = \lfloor x \rfloor$ → greatest integer less than or equal to x .
↳ sometimes called floor function



Domain: \mathbb{R}

Range: Integers

X intercepts: $0 \leq x < 1$