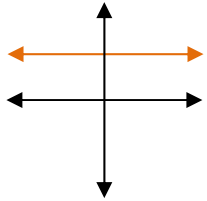


# Parent Functions

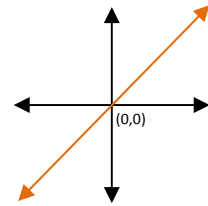
Constant:

$$f(x) = a$$



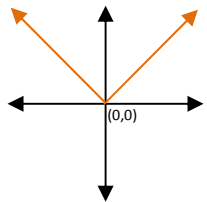
Identity:

$$f(x) = x$$



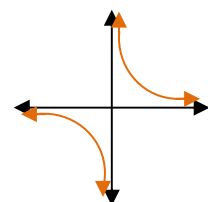
Absolute Value:

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



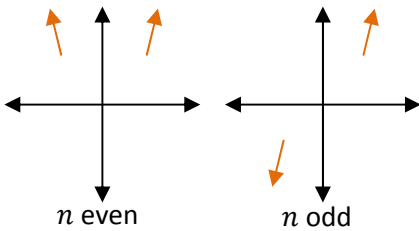
Reciprocal:

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



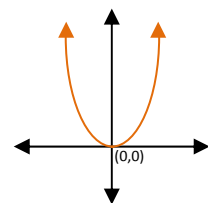
Power:

$$f(x) = x^n$$



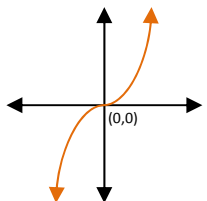
Quadratic:

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



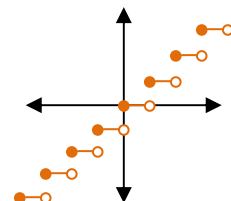
Cubic:

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



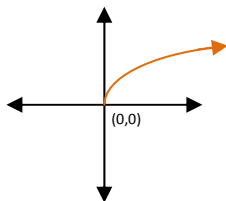
Greatest Integer:

$$f(x) = [x]$$



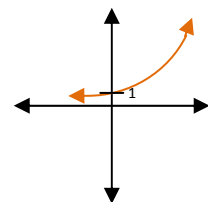
Square Root:

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



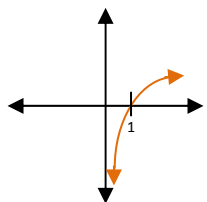
Exponential:

$$f(x) = a^x$$



Logarithmic:

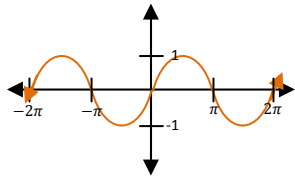
$$f(x) = \log_a x$$



# Parent Functions

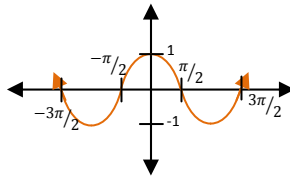
Trigonometric:

$$f(x) = \sin x$$



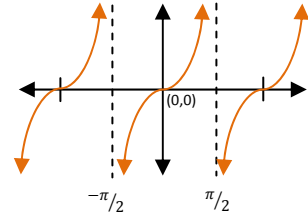
Domain:  $(-\infty, \infty)$   
Range:  $[-1, 1]$

$$f(x) = \cos x$$



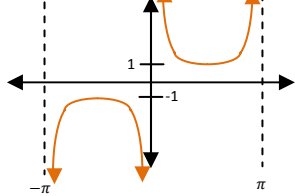
Domain:  $(-\infty, \infty)$   
Range:  $[-1, 1]$

$$f(x) = \tan x$$



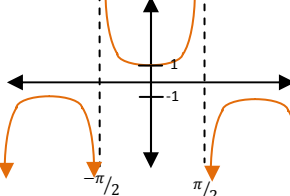
Domain: All reals except  $(n + \frac{1}{2})\pi, n = 0, \pm 1, \pm 2$   
Range:  $(-\infty, \infty)$

$$f(x) = \csc x$$



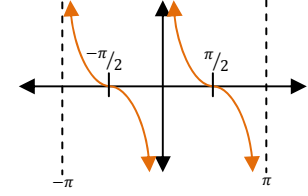
Domain: All reals except  $n\pi, n = 0, \pm 1, \pm 2 \dots$   
Range:  $(-\infty, -1] \cup [1, \infty)$

$$f(x) = \sec x$$



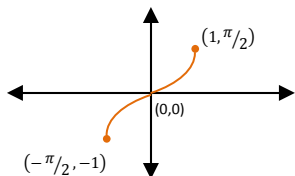
Domain: All reals except  $(n + \frac{1}{2})\pi, n = 0, \pm 1, \pm 2 \dots$   
Range:  $(-\infty, -1] \cup [1, \infty)$

$$f(x) = \cot x$$



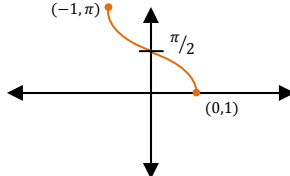
Domain: All reals except  $n\pi, n = 0, \pm 1, \pm 2 \dots$   
Range:  $(-\infty, \infty)$

$$f(x) = \sin^{-1} x$$



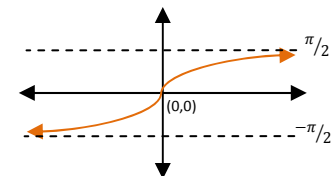
Domain:  $[-1, 1]$   
Range:  $[-\pi/2, \pi/2]$

$$f(x) = \cos^{-1} x$$



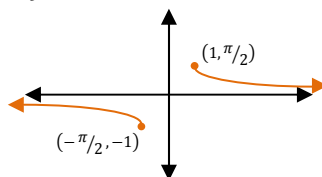
Domain:  $[-1, 1]$   
Range:  $[0, \pi]$

$$f(x) = \tan^{-1} x$$



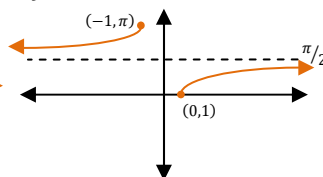
Domain:  $(-\infty, \infty)$   
Range:  $(-\pi/2, \pi/2)$

$$f(x) = \csc^{-1} x$$



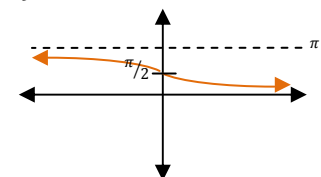
Domain:  $(-\infty, -1] \cup [1, \infty)$   
Range:  $[-\pi/2, 0) \cup (0, \pi/2]$

$$f(x) = \sec^{-1} x$$



Domain:  $(-\infty, -1] \cup [1, \infty)$   
Range:  $[0, \pi/2) \cup (\pi/2, \pi]$

$$f(x) = \cot^{-1} x$$

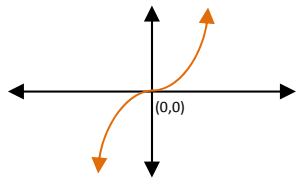


Domain:  $(-\infty, \infty)$   
Range:  $(0, \pi)$

# Parent Functions

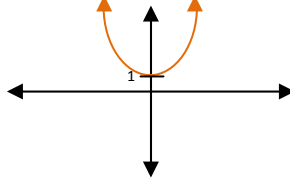
Hyperbolic:

$$f(x) = \sinh x$$



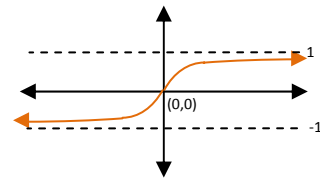
Domain:  $(-\infty, \infty)$   
Range:  $(-\infty, \infty)$

$$f(x) = \cosh x$$



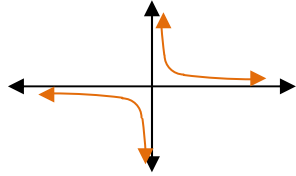
Domain:  $(-\infty, \infty)$   
Range:  $[1, \infty)$

$$f(x) = \tanh x$$



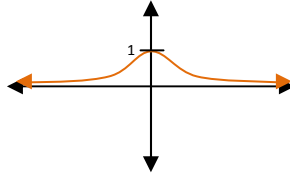
Domain:  $(-\infty, \infty)$   
Range:  $(-1, 1)$

$$f(x) = \operatorname{csch} x$$



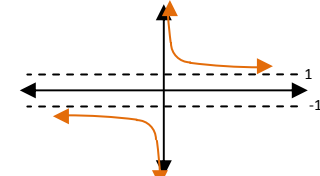
Domain:  $(-\infty, 0) \cup (0, \infty)$   
Range:  $(-\infty, 0) \cup (0, \infty)$

$$f(x) = \operatorname{sech} x$$



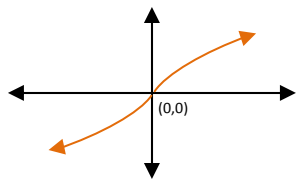
Domain:  $(-\infty, \infty)$   
Range:  $(0, 1]$

$$f(x) = \operatorname{coth} x$$



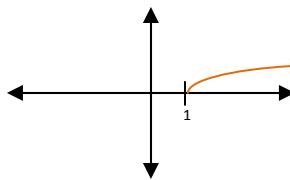
Domain:  $(-\infty, 0) \cup (0, \infty)$   
Range:  $(-\infty, -1) \cup (1, \infty)$

$$f(x) = \sinh^{-1} x$$



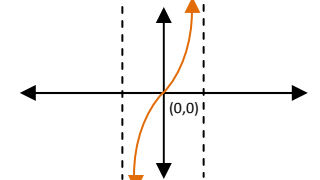
Domain:  $(-\infty, \infty)$   
Range:  $(-\infty, \infty)$

$$f(x) = \cosh^{-1} x$$



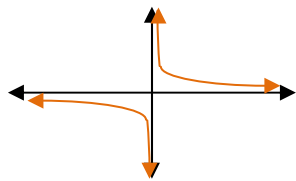
Domain:  $[1, \infty)$   
Range:  $[0, \infty)$

$$f(x) = \tanh^{-1} x$$



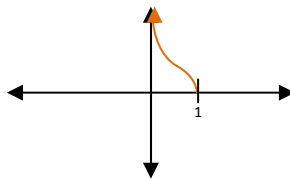
Domain:  $(-1, 1)$   
Range:  $(-\infty, \infty)$

$$f(x) = \operatorname{csch}^{-1} x$$



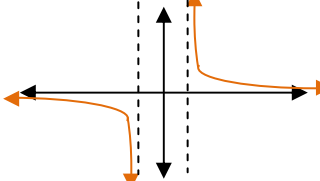
Domain:  $(-\infty, 0) \cup (0, \infty)$   
Range:  $(-\infty, 0) \cup (0, \infty)$

$$f(x) = \operatorname{sech}^{-1} x$$



Domain:  $(0, 1]$   
Range:  $[0, \infty)$

$$f(x) = \operatorname{coth}^{-1} x$$



Domain:  $(-\infty, -1) \cup (1, \infty)$   
Range:  $(-\infty, 0) \cup (0, \infty)$