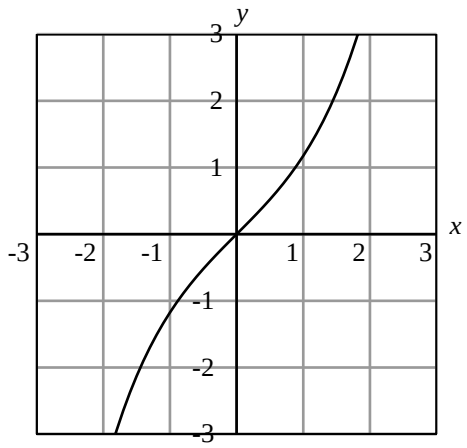
Name: Hyperbolic sine



$\boxed{y = \sinh(x)}$

Alias: sinh

Formula: $\sinh(x) = \dfrac{e^x - e^{-x}}{2}$

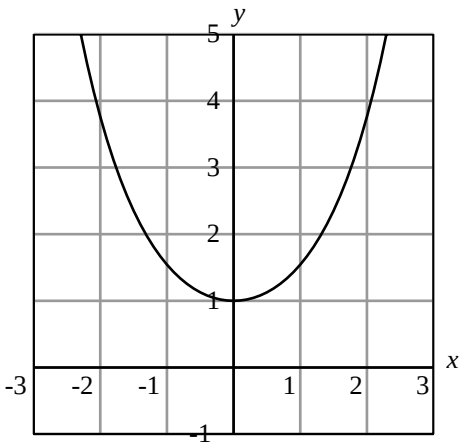
Characteristics:

- $\sinh(0) = 0$
- $\lim\limits_{x\to\infty} \sinh(x) = \infty$
  $\lim\limits_{x\to-\infty} \sinh(x) = -\infty$
- sinh is an odd function:
  $\sinh(-x) = -\sinh(x)$ for all x.

Known accomplices: cosh, tanh. Also csch, sech, and coth.

Useful relations: $\cosh^2(x) - \sinh^2(x) = 1$;
$\sinh(x+y) = \sinh(x)\cosh(y) + \cosh(x)\sinh(y)$;
$\dfrac{d}{dx}\sinh(x) = \cosh(x)$.

Name: Hyperbolic cosine



$\boxed{y = \cosh(x)}$

Alias: cosh

Formula: $\cosh(x) = \dfrac{e^x + e^{-x}}{2}$

Characteristics:

- $\cosh(0) = 1$
- $\lim_{x \to \pm\infty} \cosh(x) = \infty$
- cosh is an even function
  $\cosh(-x) = \cosh(x)$ for all x.

Known accomplices: sinh, tanh. Also csch, sech, and coth.

Useful relations: $\cosh^2(x) - \sinh^2(x) = 1$;
$\cosh(x + y) = \cosh(x)\cosh(y) + \sinh(x)\sinh(y)$;
$\dfrac{d}{dx}\cosh(x) = \sinh(x)$.