

Tema 7.1: Funciones Hiperbólicas

$$\operatorname{senh}(x) = \frac{e^x - e^{-x}}{2}$$

$$\operatorname{cosh}(x) = \frac{e^x + e^{-x}}{2}$$

$$\operatorname{tanh}(x) = \frac{\operatorname{senh}(x)}{\operatorname{cosh}(x)}$$

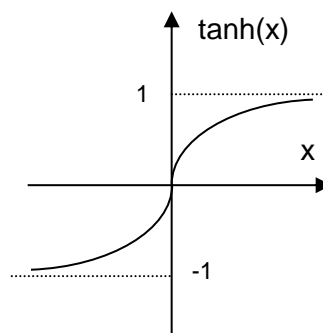
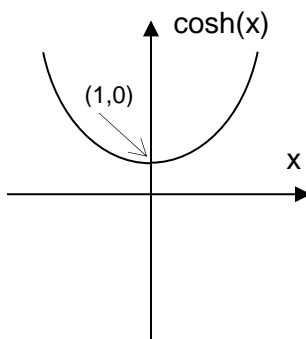
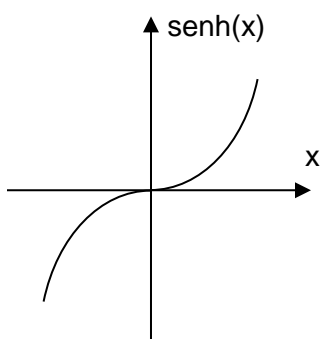
$$\frac{d}{dx} \operatorname{senh}(u) = \operatorname{cosh}(u) \frac{du}{dx}$$

$$\frac{d}{dx} \operatorname{cosh}(u) = \operatorname{senh}(u) \frac{du}{dx}$$

$$\frac{d}{dx} \operatorname{tanh}(u) = \operatorname{sech}^2(u) \frac{du}{dx}$$

$$\operatorname{sen}^2(x) + \operatorname{cos}^2(x) = 1$$

$$\operatorname{cosh}^2(x) - \operatorname{senh}^2(x) = 1$$



Identidades y Fórmulas Trigonómicas Frecuentes

$$\operatorname{sen}^2(\theta) + \operatorname{cos}^2(\theta) = 1$$

$$\operatorname{cos}^2(\theta) = \frac{1}{2}(1 + \operatorname{cos}(2\theta))$$

$$\operatorname{sen}^2(\theta) = \frac{1}{2}(1 - \operatorname{cos}(2\theta))$$

$$\operatorname{sen}(2\theta) = 2\operatorname{sen}(\theta)\operatorname{cos}(\theta)$$

$$\operatorname{cos}(2\theta) = \operatorname{cos}^2(\theta) - \operatorname{sen}^2(\theta)$$

$$\operatorname{tan}(\theta) = \frac{\operatorname{sen}(\theta)}{\operatorname{cos}(\theta)}$$

$$\operatorname{sec}(\theta) = \frac{1}{\operatorname{cos}(\theta)}$$

$$\operatorname{csc}(\theta) = \frac{1}{\operatorname{sen}(\theta)}$$

$$\frac{d}{dx} \operatorname{sen}(u) = \operatorname{cos}(u) \frac{du}{dx}$$

$$\frac{d}{dx} \operatorname{cos}(u) = -\operatorname{sen}(u) \frac{du}{dx}$$

$$\frac{d}{dx} \operatorname{tan}(u) = \operatorname{sec}^2(u) \frac{du}{dx}$$