Trig identities

$$\cos^2 x = 1 + \sin^2 x$$
$$\sin^2 x = 1 - \cos^2 x$$

Derivatives of inverse trig functions

$$\frac{d}{dx}\sin^{-1} x = \frac{1}{\sqrt{1-x^2}}$$
$$\frac{d}{dx}\cos^{-1} x = -\frac{1}{\sqrt{1-x^2}}$$
$$\frac{d}{dx}\tan^{-1} x = \frac{1}{1+x^2}$$
$$\frac{d}{dx}\csc^{-1} x = -\frac{1}{x\sqrt{x^2-1}}$$
$$\frac{d}{dx}\sec^{-1} x = \frac{1}{x\sqrt{x^2-1}}$$
$$\frac{d}{dx}\cot^{-1} x = -\frac{1}{\sqrt{1+x^2}}$$

Hyperbolic definitions and identities

$$\sinh x = \frac{e^x - e^{-x}}{2}$$
$$\cosh x = \frac{e^x + e^{-x}}{2}$$
$$\tanh x = \frac{\sinh x}{\cosh x}$$
$$cschx = \frac{1}{\sinh x}$$
$$sechx = \frac{1}{\cosh x}$$
$$\coth x = \frac{\cosh x}{\sinh x}$$

$$\sinh(-x) = -\sinh x$$
$$\cosh^2 x - sinh^2 x = 1$$
$$\sinh(x+y) = \sinh x \ \cosh y + \cosh x \ \sinh y$$
$$\cosh(x+y) = \cosh x \ \cosh y + \sin x \ \sinh y$$

$$\cosh(-x) = -\cosh x$$

$$1 - \tanh^2 x \ = sech^2 x$$

Derivatives of Hyperbolic functions

$$\frac{d}{dx} \sinh x \ = \cosh x$$

$$\frac{d}{dx} \sin x \ = \sinh x$$

$$\frac{d}{dx} \tanh x \ = sech^2 x$$

$$\frac{d}{dx} cschx \ = -cschx \ \coth x$$

$$\frac{d}{dx} sechx = -sechx \tanh x$$

$$\frac{d}{dx} \coth x = -csch^2 x$$

Hyperbolic functions in terms of logarithms
Derivatives of Inverse Hyperbolic functions
Approximations MidpointRule =

$$\int x$$