Trig Calc Review

Derivatives

$$\frac{\partial \sin(x)}{\partial x} = \cos(x)$$
$$\frac{\partial \sin^{-1}(x)}{\partial x} = \frac{1}{\sqrt{1-x^2}}$$
$$\frac{\partial \sinh(x)}{\partial x} = \cosh(x)$$
$$\frac{\partial \sinh^{-1}(x)}{\partial x} = \frac{1}{\sqrt{x^2+1}}$$
$$\frac{\partial \cos(x)}{\partial x} = -\sin(x)$$
$$\frac{\partial \cosh(x)}{\partial x} = \sinh(x)$$
$$\frac{\partial \cos^{-1}(x)}{\partial x} = -\frac{1}{\sqrt{1-x^2}}$$
$$\frac{\partial \cosh^{-1}(x)}{\partial x} = \frac{1}{\sqrt{x-1}\sqrt{x+1}}$$
$$\frac{\partial \tan(x)}{\partial x} = \sec^2(x)$$
$$\frac{\partial \tan^{-1}(x)}{\partial x} = \frac{1}{x^2+1}$$
$$\frac{\partial \tanh(x)}{\partial x} = \operatorname{sech}^2(x)$$
$$\frac{\partial \tanh^{-1}(x)}{\partial x} = \frac{1}{1-x^2}$$

Integrals

$$\int \sin(x)\,dx = -\cos(x)$$
$$\int \sin^{-1}(x)\,dx = \sqrt{1-x^2} + x\sin^{-1}(x)$$
$$\int \sinh(x)\,dx = \cosh(x)$$
$$\int \sinh^{-1}(x)\,dx = x\sinh^{-1}(x) - \sqrt{x^2+1}$$
$$\int \cos(x)\,dx = \sin(x)$$
$$\int \cosh(x)\,dx = \sinh(x)$$
$$\int \cos^{-1}(x)\,dx = x\cos^{-1}(x) - \sqrt{1-x^2}$$
$$\int \cosh^{-1}(x)\,dx = x\cosh^{-1}(x) - \sqrt{x-1}\sqrt{x+1}$$
$$\int \tan(x)\,dx = -\log(\cos(x))$$
$$\int \tan^{-1}(x)\,dx = x\tan^{-1}(x) - \frac{1}{2}\log\left(x^2+1\right)$$
$$\int \tanh(x)\,dx = \log(\cosh(x))$$
$$\int \tanh^{-1}(x)\,dx = \frac{1}{2}\log\left(1-x^2\right) + x\tanh^{-1}(x)$$