

$$\frac{d}{dx}[\sin^{-1} u] = \frac{u'}{\sqrt{1-u^2}}, \quad \frac{d}{dx}[\cos^{-1} u] = -\frac{d}{dx}[\sin^{-1} u]$$

$$\frac{d}{dx}[\tan^{-1} u] = \frac{u'}{1+u^2}, \quad \frac{d}{dx}[\cot^{-1} u] = -\frac{d}{dx}[\tan^{-1} u]$$

$$\frac{d}{dx}[\sec^{-1} u] = \frac{u'}{u\sqrt{u^2-1}}, \quad \frac{d}{dx}[\csc^{-1} u] = -\frac{d}{dx}[\sec^{-1} u]$$

$$p_n(x) = f(0) + f'(0)x + \frac{f''(0)}{2!}x^2 + \frac{f'''(0)}{3!}x^3 + \dots + \frac{f^{(n)}(0)}{n!}x^n$$

$$\sum_{k=0}^{\infty} \frac{f^{(k)}(a)}{k!} (x-a)^k = f(a) + f'(a)(x-a) + \frac{f''(a)}{2!} (x-a)^2 + \dots + \frac{f^{(k)}(a)}{k!} (x-a)^k + \dots$$