

Power Series

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$$e^x = 1 + \frac{1}{1!}x + \frac{1}{2!}x^2 + \frac{1}{3!}x^3 + \dots$$

$$\sin(x) = \frac{1}{1!}x - \frac{1}{3!}x^3 + \frac{1}{5!}x^5 - \dots$$

$$\cos(x) = 1 - \frac{1}{2!}x^2 + \frac{1}{4!}x^4 - \dots$$

$$\tan(x) = x + \frac{1}{3}x^3 + \frac{1}{15!}x^5 + \dots |x| < \frac{\pi}{2}$$

$$\ln(1+x) = x + \frac{1}{2}x^2 + \frac{1}{3}x^3 + \dots |x| < 1$$

$$(1+x)^a = 1 + \frac{a}{1!}x + \frac{a(a-1)}{2!}x^2 + \dots$$

$$\sqrt{1+x} = 1 + \frac{1}{2}x + \frac{1}{8}x^2 + \frac{1}{16}x^3 + \dots$$

$$\frac{1}{\sqrt{1+x}} = 1 - \frac{1}{2}x + \frac{3}{8}x^2 - \frac{5}{16}x^3 + \dots$$

$$\arctan(x) = x - \frac{1}{3}x^3 + \frac{1}{5}x^5 - \dots |x| < 1$$

$$\arcsin(x) = x + \frac{1}{6}x^3 + \frac{3}{40}x^5 + \dots |x| < 1$$

$$\cosh(x) = 1 + \frac{1}{2!}x^2 + \frac{1}{4!}x^4 + \dots$$

$$\sinh(x) = x + \frac{1}{3!}x^3 + \frac{1}{5!}x^5 + \dots$$