

## 10.1: A- Series and Integrals

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$$\frac{1}{1-x} = 1 + x + x^2 + x^3 + x^4 + \dots \quad \text{for } |x| < 1 \quad (\text{the "geometric series"}) \quad (10.1.1)$$

$$e^x = 1 + x + \frac{1}{2!}x^2 + \frac{1}{3!}x^3 + \frac{1}{4!}x^4 + \dots \quad (10.1.2)$$

$$\ln(1+x) = x - \frac{1}{2}x^2 + \frac{1}{3}x^3 - \frac{1}{4}x^4 + \dots \quad \text{for } |x| < 1 \quad (10.1.3)$$

$$\int_{-\infty}^{+\infty} e^{-ax^2+bx} dx = \sqrt{\frac{\pi}{a}} e^{b^2/4a} \quad \text{for } a > 0 \quad (\text{the "Gaussian integral"}) \quad (10.1.4)$$

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