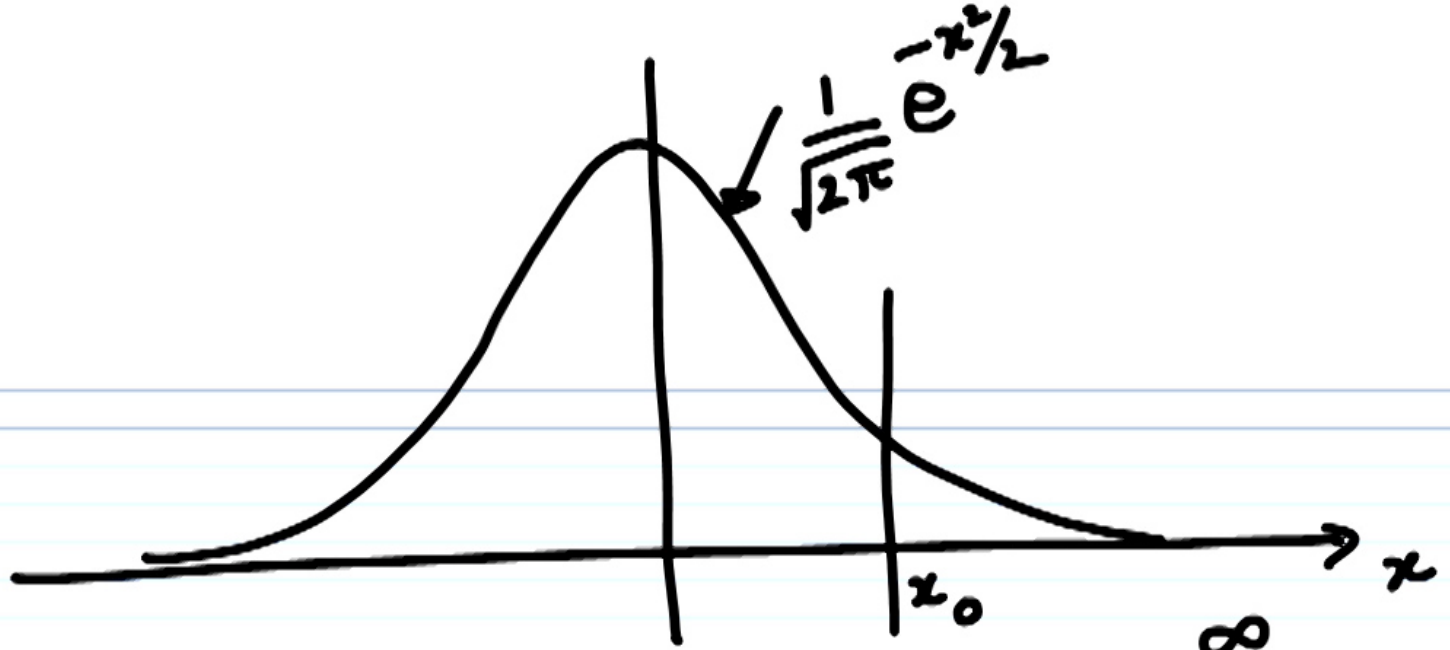

$$Q(x_0) = \int_{x_0}^{\infty} \frac{1}{\sqrt{2\pi}} e^{-x^2/2} dx.$$

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$$erfc(x_0) = \frac{2}{\sqrt{\pi}} \int_{x_0}^{\infty} e^{-x^2} dx \qquad x = x/\sqrt{2}$$

$$Q(x_0) = 0.5\, erfc\left(\frac{x_0}{\sqrt{2}}\right)$$

$$\sqrt{\pi} \int_{x_0}^{\infty} \qquad x = x/\sqrt{2}$$

$$Q(x_0) = 0.5\, \text{erfc}\left(\frac{x_0}{\sqrt{2}}\right)$$

$$\frac{E_b}{N_0} = \frac{1}{2R\sigma^2}$$

$$\sigma = \sqrt{\frac{1}{2R\left(\frac{E_b}{N_0}\right)}}$$

$$\frac{E_b}{N_0} = 10^{\frac{\left(\frac{E_b}{N_0}\text{dB}\right)}{10}}$$

$$BER = Q\left(\sqrt{2\,\frac{E_b}{N_0}}\right) = 0.5\,\text{erfc}\left(\sqrt{\frac{E_b}{N_0}}\right)$$