Formulas

$$R(q) = q \cdot D(q) \qquad P(q) = R(q) - C(q) \qquad MP(q) = MR(q) - MC(q)$$

$$\int_0^{q_0} D(q)\,dq - q_0 \cdot D(q_0) \qquad f'(x) \cong \frac{f(x+h) - f(x-h)}{2 \cdot h}$$

$$\Delta x = \frac{b-a}{n} \qquad x_i = a + i \cdot \Delta x \qquad m_i = \frac{x_{i-1} + x_i}{2} \qquad S_n\big(f,[a,b]\big) = \sum_{i=1}^{n} f(m_i) \cdot \Delta x$$

$$f_X(x) = \begin{cases} 0 & \text{if } x < a \\ \dfrac{1}{b-a} & \text{if } a \le x \le b \\ 0 & \text{if } x > b \end{cases} \qquad F_X(x) = \begin{cases} 0 & \text{if } x < a \\ \dfrac{x-a}{b-a} & \text{if } a \le x \le b \\ 1 & \text{if } x > b \end{cases}$$

$$f_X(x) = \begin{cases} 0 & \text{if } x < 0 \\ \dfrac{1}{\alpha} \cdot e^{-x/\alpha} & \text{if } x \ge 0 \end{cases} \qquad F_X(x) = \begin{cases} 0 & \text{if } x < 0 \\ 1 - e^{-x/\alpha} & \text{if } x \ge 0 \end{cases}$$

$$f_Z(z) = \frac{1}{\sqrt{2 \cdot \pi}} \cdot e^{-0.5 \cdot z^2} \qquad f_X(x) = \frac{1}{\sigma_X \cdot \sqrt{2 \cdot \pi}} \cdot e^{-0.5 \cdot \left(\frac{x - \mu_X}{\sigma_X}\right)^2}$$

$$E(X) = \sum_{\text{all } x} x \cdot f_X(x) \qquad E(X) = n \cdot p \qquad E(X) = \int_{-\infty}^{\infty} x \cdot f_X(x)\,dx \qquad E(X) = \frac{a+b}{2}$$

$$E(X) = \alpha \qquad \bar{x} = \frac{1}{n} \cdot \sum_{i=1}^{n} x_i \qquad V(X) = \sum_{\text{all } x} (x - \mu_X)^2 \cdot f_X(x) \qquad V(X) = n \cdot p \cdot (1-p)$$

$$V(X) = \int_{-\infty}^{\infty} (x - \mu_X)^2 \cdot f_X(x)\,dx \qquad V(X) = \frac{(b-a)^2}{12} \qquad V(X) = \alpha^2 \qquad \sigma^2 = V(X)$$

$$V(\bar{x}) = \frac{V(X)}{n} \qquad s^2 = \frac{1}{n-1} \cdot \sum_{i=1}^{n} (x_i - \bar{x})^2 \qquad S = \frac{X - \mu_X}{\sigma_X}$$