

Chapter 3

$$s^2 = \frac{\sum(x - \bar{x})^2}{n - 1} = \frac{\sum x^2 - (\sum x)^2/n}{n - 1} \quad s = \sqrt{s^2}$$

$$\text{Q1} - 1.5 \text{ IQR} \quad \text{Q3} + 1.5 \text{ IQR}$$

$$68\% : \mu \pm \sigma \quad 95\% : \mu \pm 2\sigma \quad 99.7\% : \mu \pm 3\sigma$$

$$z = \frac{x - \mu}{\sigma}$$

$$r = \frac{\frac{1}{n-1} \sum(x - \bar{x})(y - \bar{y})}{s_x s_y}$$

$$b = \frac{\sum(x - \bar{x})(y - \bar{y})}{\sum(x - \bar{x})^2} = \frac{r s_y}{s_x} \quad a = \bar{y} - b\bar{x} \quad \hat{y} = a + bx$$

Chapter 4

$$P(A|B) = \frac{P(A \text{ and } B)}{P(B)}$$

Chapter 5

$$P(x) = \frac{n!}{x!(n-x)!} \pi^x (1-\pi)^{n-x} \quad \mu = n\pi \quad \sigma = \sqrt{n\pi(1-\pi)}$$

$$P(x) = \lambda^x e^{-\lambda}/x!$$

Chapter 6

$$Z = \frac{X - \mu}{\sigma} \quad X = \mu + \sigma Z$$

$$\sigma^2 = (b - a)^2/12$$

$$F(x) = 1 - e^{-\lambda x}$$

Chapter 7

$$Z = \frac{\bar{X} - \mu_{\bar{X}}}{\sigma_{\bar{X}}} = \frac{\bar{X} - \mu}{\sigma/\sqrt{n}} \quad Z = \frac{p - \mu_p}{\sigma_p} = \frac{p - \pi}{\sqrt{\pi(1-\pi)/n}}$$

Chapter 8

$$p \pm z\sqrt{p(1-p)/n} \quad n = \pi(1-\pi)(z/e)^2 \quad n = 0.25 (z/e)^2$$

$$\bar{X} \pm t_{n-1} s/\sqrt{n} \quad n = (z \sigma/e)^2$$

Chapter 9

$$T_{n-1} = \frac{\bar{X} - \mu}{s/\sqrt{n}}$$

Chapter 10

$$T = \frac{\bar{X}_1 - \bar{X}_2 - (\mu_1 - \mu_2)}{\sqrt{s_1^2/n_1 + s_2^2/n_2}} \quad \bar{X}_1 - \bar{X}_2 \pm t \sqrt{s_1^2/n_1 + s_2^2/n_2}$$

$$Z = \frac{p_1 - p_2 - 0}{\sqrt{p(1-p)(1/n_1 + 1/n_2)}} \quad p_1 - p_2 \pm z \sqrt{p_1(1-p_1)/n_1 + p_2(1-p_2)/n_2}$$