

Chapter 3

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

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

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

Chapter 4

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

Chapter 5

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

Chapter 6

$$Z = \frac{\bar{X} - \mu_{\bar{X}}}{\sigma_{\bar{X}}} = \frac{\bar{X} - \mu}{\sigma/\sqrt{n}}$$

$$Z = \frac{\hat{p} - \mu_{\hat{p}}}{\sigma_{\hat{p}}} = \frac{\hat{p} - p}{\sqrt{p(1-p)/n}}$$

Chapter 7

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

$$\hat{p} \pm z \sqrt{\hat{p}(1-\hat{p})/n} \quad n = p^*(1-p^*)(z/m)^2 \quad n = 0.25 (z/m)^2$$

Chapter 8

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

Chapter 11

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

$$b_1 = \frac{\sum(x - \bar{x})(y - \bar{y})}{\sum(x - \bar{x})^2} = \frac{r s_y}{s_x} \quad b_0 = \bar{y} - b_1 \bar{x} \quad \hat{y} = b_0 + b_1 x$$

$$T = (b_1 - \beta_1)/s_{b_1}$$

Chapter 10

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Chapter 9

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

$$\hat{p}_1 - \hat{p}_2 \pm z \sqrt{\hat{p}_1(1-\hat{p}_1)/n_1 + \hat{p}_2(1-\hat{p}_2)/n_2} \quad Z = \frac{\hat{p}_1 - \hat{p}_2 - 0}{\sqrt{\hat{p}(1-\hat{p})(1/n_1 + 1/n_2)}}$$