8.1

Sampling Distribution for $\bar{x}_1 - \bar{x}_2$ (difference of sample means):

Standard Error: $\sigma_{\bar{x}_1 - \bar{x}_2} = \sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}$

8.2

Estimate of the standard deviation: $\hat{\sigma} = \sqrt{\frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}}$

Standard Error: $\sigma_{\bar{x}_1 - \bar{x}_2} = \hat{\sigma} \cdot \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$ with df = $n_1 + n_2 - 2$

Standard Error: $\sigma_{\bar{x}_1 - \bar{x}_2} = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$ with df = smaller of $n_1 - 1$ or $n_2 - 1$

8.3

Standard Deviation of the differences: $s_d = \sqrt{\frac{\sum d^2 - \frac{(\sum d)^2}{n}}{n-1}}$

8.4

Standard Error: $\sigma = \sqrt{\bar{p}\bar{q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}$ where $\bar{p} = \frac{x_1+x_2}{n_1+n_2}$ and $\bar{q} = 1 - \bar{p}$