HW7 part C

Section 7.3 Exercise

7, 8, 9, 10, 24, 30, 34, page 325-327.

7. standard error.

8. 0.5.

9. True. Note $\hat{p} = 0.5$ gives a larger *n* than any other \hat{p} values.

10. False. A larger sample size produces a smaller margin of error.

24. a. The point estimate is $\hat{p} = \frac{42}{120} = 0.350$.

b. A 98% CI is

 $0.35 \pm 2.326 * \sqrt{0.35 * 0.65/120} = 0.35 \pm 0.101 = (0.249, 0.451).$

c. As the confidence interval includes the value 0.39, so it does not contradict the statement.

30. If we use $\hat{p} = 0.34$, the needed sample size is

 $n = \hat{p}(1-\hat{p})(\frac{z_{\alpha/2}}{m})^2 = 0.34 * 0.67(1.96/0.03)^2 = 958.$ If no estimate of p is available, we can use $\hat{p} = 0.5$ and the needed sample size is

 $n = \hat{p}(1-\hat{p})(\frac{z_{\alpha/2}}{m})^2 = 0.5 * 0.5(1.96/0.03)^2 = 1068.$ 34. In this data set, we do not have at least 10 subjects in each category. Use the CI for small sample sizes, we have

 $\tilde{p} = \frac{3+2}{20+4} = 0.208$, and a 98% CI is:

 $0.208 \pm 2.33\sqrt{0.208 * 0.792/24} = 0.208 \pm 0.193 = 0.015, 0.401.$