

Section 8.4 page 389.

5, 7-9, 16, 21.

Solutions:

5. 10.

7. True.

8. False.

9. a). $\hat{p} = 0.675$.

b). Yes. There are at least 10 individuals in each category under the null hypothesis.

c). $z = \frac{0.675 - 0.8}{\sqrt{0.8 * 0.2 / 80}} = -2.80$.

d). p-value = $P(z < -2.80) = 0.003$.

Reject H_0 .

16. check sample size conditions:

$$np_0 = 1015 * .45 > 10, n(1 - p_0) = 1015 * .55 > 10.$$

$$\hat{p} = 437 / 1015 = 0.431,$$

$$H_0 : p = 0.45$$

$$H_1 : p < 0.45$$

$$z = \frac{0.431 - 0.45}{\sqrt{0.45 * 0.55 / 1015}} = -1.22$$

$$\text{p-value} = P(z < -1.22) = 0.11.$$

Do not reject H_0 .

21. Check sample size conditions:

$$np_0 = 50 * 0.73 > 10, n(1 - p_0) = 50 * 0.27 > 10.$$

$$\hat{p} = 55 / 70 = 0.786,$$

$$H_0 : p = 0.73$$

$$H_1 : p > 0.73$$

$$z = \frac{.786 - 0.73}{\sqrt{0.73 * .27 / 50}} = 0.02$$

$$\text{p-value} = P(z > 0.02) = 0.492.$$

Do not reject H_0 .