Homework Solutions
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Exercise 9

(a) The point estimate is $\hat{p} = \frac{320}{439} = 0.7289$.

(b) The problem says "Test the hypotheses," so we should show all 7 steps.

1. Let p be the proportion of the population of parents who would stay home if money were not a factor.
   $H_0: \quad p = 0.70$
   $H_1: \quad p > 0.70$
2. $\alpha = 0.05$.
3. $z = \dfrac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}}$.
4. We have $n = 439$ and $\hat{p} = 0.7289$. So
$$\begin{aligned} z &= \frac{0.7289 - 0.70}{\sqrt{\frac{(0.70)(0.30)}{439}}} \\ &= \frac{0.0289}{0.0219} \\ &= 1.321. \end{aligned}$$
5. p-value = `normalcdf(1.321,E99)` $= 0.0932$.
6. Accept H_0.
7. The proportion of parents who would stay home if money were not a factor is 70%.