

Homework Solutions

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Exercise 12

Show all 7 steps.

1. Let p be the proportion of all workers who are willing to work fewer hours for less pay to obtain more time for personal and leisure activities.

$$H_0 : p = 0.20$$

$$H_1 : p < 0.20$$

2. $\alpha = 0.05$.

3.
$$z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}}$$

4. We have $n = 600$ and $\hat{p} = 0.14$. The test statistic is

$$\begin{aligned} z &= \frac{0.14 - 0.20}{\sqrt{\frac{(0.20)(0.80)}{600}}} \\ &= -\frac{0.06}{0.01633} \\ &= -3.674. \end{aligned}$$

5. $p\text{-value} = \text{normalcdf}(-E99, -3.674) = 1.193 \times 10^{-4}$.

6. Reject H_0 .

7. The proportion of all workers who are willing to work fewer hours for less pay to obtain more time for personal and leisure activities is less than 20%.