Homework Solutions
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Exercise 8

(a) The hypotheses are

$H_0: \quad p = 0.05$

$H_1: \quad p > 0.05$

(b) We have $n = 2000$ and $\hat{p} = \frac{125}{2000} = 0.0625$, so

$$\begin{aligned} z &= \frac{0.0625 - 0.05}{\sqrt{\frac{(0.05)(0.95)}{2000}}} \\ &= \frac{0.0125}{0.00487} \\ &= 2.565. \end{aligned}$$

The p-value is

$$\begin{aligned} p\text{-value} &= \texttt{normalcdf(2.565,E99)} \\ &= 0.00516. \end{aligned}$$

(c) Reject H_0. The unemployment rate in this city is greater than 0.05.