

Homework Solutions
Chapter 9 – Page 580

Exercise 6

- (a) This is a two-sided test. The alternative hypothesis says “not equal to 70%,” which allows for a deviation in either direction.
- (b) The point estimate (i.e., \hat{p}) is $\frac{64}{106} = 0.6038$.
- (c) If H_0 is true, then the sampling distribution of \hat{p} is normal with mean 0.70 and standard deviation

$$\sqrt{\frac{(0.70)(0.30)}{106}} = 0.0445.$$

So the p -value is

$$2 \times \text{normalcdf}(-E99, .6038, .70, .0445) = 0.0306.$$

Or you could compute the z -score of 0.6038:

$$\begin{aligned} z &= \frac{0.6038 - 0.70}{\sqrt{\frac{(0.70)(0.30)}{106}}} \\ &= -\frac{0.0962}{0.0445} \\ &= -2.162. \end{aligned}$$

Then the p -value is

$$2 \times \text{normalcdf}(-E99, -2.162) = 0.0306.$$

- (d) At the 5% level, we should reject H_0 , so our conclusion is that the percent who think that “Made in America” means 100% of labor plus materials are from the U.S. is not 70%.