



Example 1:

Kelly claims that on average, he drinks around 6 oz of coffee per day. But I question this claim as Kelly is known to only drink “2 sips” from his coffee before throwing it away! I randomly select 35 days to measure the amount of coffee Kelly drinks. The sample average is 5.1 oz. Based on past data, it is known that the standard deviation of the amount of coffee Kelly drinks is 3.5 oz.

Conduct a hypothesis test with $\alpha = 0.05$.

Step 0: Check if the test is appropriate (z-test)

Step 1: State the hypotheses

$$H_0: \mu = 6 \text{ oz} \quad \text{vs.} \quad H_1: \mu < 6 \text{ oz}$$

Other options: $H_0: \mu = 6 \text{ oz}$ vs. $H_1: \mu > 6 \text{ oz}$

$H_0: \mu = 6 \text{ oz}$ vs. $H_1: \mu \neq 6 \text{ oz}$

Step 2: Compute the test statistic

Step 3: Compute the p -value

Step 4: State the conclusion

$p\text{-value} \leq \alpha$: Reject H_0

$p\text{-value} > \alpha$: Fail to reject H_0

Since $p\text{-value} = \alpha = 0.05$,