

# Assignment 2

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## 1

The null hypothesis ( $H_0$ ) should be that the mean amount spent per trip to Quartz Emporium ( $\mu$ ) is equal to \$22.50. This is because the supermarket claims that the mean amount spent per trip is \$22.50.

The alternative hypothesis ( $H_1$ ) should be that the mean amount spent per trip to Quartz Emporium ( $\mu$ ) is more than \$22.50. This is because the WatchDogs suspect that the supermarket has discreetly hiked up their prices.

Null hypothesis ( $H_0$ ):  $\mu = 22.50$  Alternative hypothesis ( $H_1$ ):  $\mu > 22.50$

## 2

With the sample mean of 25.8364 and a sample standard deviation of 16.15334, the standardized test statistic evaluates to 1.460497

## 3

They would want a test statistics that is greater then 1.28 to be 90% certain that they do not make a false claim.

## 4

The WatchDogs should reject the null hypothesis, as a test statistic of 1.46 is greater than 1.28. Therefore it is likely that the mean amount spent per trip to Quartz Emporium is more than \$22.50.

## 5

The p-value for the hypothesis test is 0.072145

## 6

The smallest level of significance the hypothesis test could be rejected at is 0.072145. This is (not coincidentally) the p-value of the hypothesis test.