

AP Stats Chapter 10 FRAPPY

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STATE

$$H_0 : \mu_1 = \mu_2$$

$$H_a : \mu_1 > \mu_2$$

Where μ_1 is the mean amount of popped kernels for name-brand microwave popcorn and μ_2 is the mean amount of popped kernels for store-brand microwave popcorn.

PLAN

One sample t test for $\mu_1 - \mu_2$ with $\alpha = 0.05$

Random: bags of popcorn are randomly selected

10%: 10 is less than 10% of all bags of popcorn

Normal: both samples have no outliers or skews

DO

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

where $\bar{x}_1 = 89.9$ and $\bar{x}_2 = 84.5$ and

$s_1 = 5.13$ and $s_2 = 4.81$ and

$n_1 = 10$ and $n_2 = 10$

$$t = \frac{89.9 - 84.5}{\sqrt{\frac{5.13^2}{10} + \frac{4.81^2}{10}}} \\ \approx 2.43$$

P-value = tCDF(lower: 2.43, upper: ∞ , df: 9)
 ≈ 0.124

CONCLUDE

Since the P-value of 0.124 is greater than the significance level of 0.05, we fail to reject the null hypothesis. Thus, there is not convincing evidence that using name-brand microwave popcorn will result in a greater mean percentage of popped kernels than using store-brand microwave popcorn.