

2014Q5

Let μ_D = mean of the differences in purchase prices (woman - man) for each car model (identical cars purchased by the man & the woman).

1) $H_0: \mu_D = 0$

$H_A: \mu_D > 0$

(Note: AP scores suggest only writing hypotheses in symbols w/ symbols defined, not also in words on the AP exam)

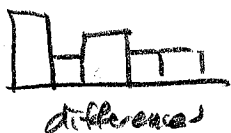
Matched pair t-test

(Note: always state clearly what inference test you are performing like this)

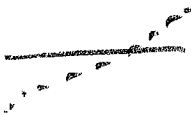
Conditions

- ✓ SRS? The problem states subjects were "randomly selected"
- ✓ $n < 10\%$ pop? These 16 people $< 10\%$ of all car buyers. (we can assume samples are independent)
- ✓ matched pair data? matched by car model.
- ✓ differences nearly normal?

could do histogram:



Normal probability plot:



could just say:

"provided dot plot of the differences does not appear to be skewed or have outliers"

3) perform a Ttest in TI-84 using the provided difference data with $\mu_0 = 0, \mu > \mu_0$:

result: $t = 3.1177$

$p\text{-value} = .0084$

$df = 8 - 1 = 7$

4) with $\alpha = .05$, $p\text{-value} = .0084$ is low so we reject H_0 . We do have sufficient statistical evidence to conclude that women pay more than men in the country for the same car, on average.

↑
organize your work...
don't need to literally number
but work from top to bottom,
step by step like this on
the AP exam.