Math 153 - Quiz 11

November 29, 2012

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (5 points) An educator claims that the mean salary of substitute teachers in a certain state is less than \$60 per day. A random sample of eight school districts is selected, and the daily salaries (in dollars) are shown below. Is there enough evidence to support the educator's claim at the level $\alpha = 0.10$?

60 56 60 55 70 55 60 55

SAMPLE STATS

$\bar{x} = 58.875$

$s_x = 5.0832$

$H_0: \mu = 60$

$H_1: \mu < 60$

$\alpha = 0.10$

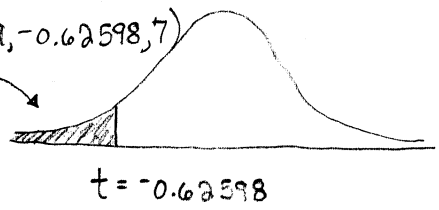
$$t = \frac{58.875 - 60}{5.0832/\sqrt{8}} = -0.62598$$

P-VALUE = AREA

= tcdf(-99999, -0.62598, 7)

=

0.2756



P-VALUE = 0.2756 > 0.10

DO NOT REJECT H_0

THERE IS NOT EVIDENCE TO SUPPORT THE EDUCATOR'S CLAIM.

2. (5 points) A dietitian claims that 60% of people are trying to avoid trans fats in their diets. She randomly selected 200 people and found that 128 people stated that they were trying to avoid trans fats in their diets. At the level $\alpha = 0.05$, is there enough evidence to reject the dietitian's claim?

$H_0: p = 0.60$

$H_1: p \neq 0.60$

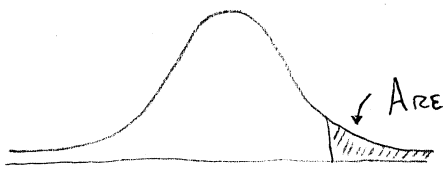
$\alpha = 0.05$

$$\hat{p} = \frac{128}{200} = 0.64$$

$\hat{q} = 0.36$

$N = 200$

$$z = \frac{\hat{p} - p}{\sqrt{\frac{pq}{N}}} = 1.1547$$



AREA = normalcdf (1.1547, 99999)

= 0.1241

P-VALUE = 2 × AREA = 0.2481

P-VALUE = 0.2481 > 0.05

WE DO NOT REJECT H_0.

THERE IS NOT ENOUGH EVIDENCE TO REJECT THE DIETITIAN'S CLAIM.