223 Homework #14

1. $H_0: \mu = 47$

$H_a: \mu \neq 47$

T-Test Stats

$\mu_0 = 47$
$\bar{x} = 44$
$S_x = 3.2$
$n = 15$

$\mu \neq \mu_0$
$t = -3.63$
$P = \underline{} .0027$

reject H_0 at $\alpha = .05$

This provides strong evidence that the advertising is misleading

T Interval $\bar{x} = 44$, $S_x = 3.2$, $n = 15$, C-level $= .95$

(42.228, 45.772) does not contain 47. So our conclusion
is the same

2. $H_0: \mu = 72$

$H_a: \mu \neq 72$

TTest

or $H_a: \mu > 72$

$\bar{x} = 75$
σ or $S = 9.4$
$n = 19$

$t = 1.39$
$P = .1811 > .05$
fail to reject H_0

$t = 1.39$
$P = .09057 > .05$
fail to reject H_0

This does not provide
strong evidence that the new method is different / better

3. $H_0: \mu = 7.5$

$H_a: \mu \neq 7.5$

TTest Data

$\mu_0 = 7.5$
List: L_1
$\mu \neq \mu_0$

$t = 1.538...$
$P = .158 > .05$
fail to reject H_0

This is not strong evidence that the manufacturing is incorrect

4. $H_0: \mu = 100$

$H_a: \mu > 100$

TTest Stats

$\mu_0 = 100$
$\bar{x} = 112$
$\sigma = 15$
$n = 30$

$t = 4.38$
$P = 7.03 \times 10^{-5} < .05$
reject H_0
This is sufficient evidence to think her
sample is above average intelligence

5. $H_0 : \mu = 300$ $\mu_0 = 300$ $t = -1.7677$

   $H_a : \mu \neq 300$ $\bar{X} = 295$ $p = .0833$ $> .05$

   T-Test $S_x = 20$

              $n = 50$ fail to reject H_0

              $\mu \neq \mu_0$

   this is not sufficient evidence to think run times are not 5 hrs.

6. $H_0 : \mu = 52$ $\mu = 52$ $t = 1.77$

   $H_a : \mu > 52$ $\bar{X} = 52.80$

   T Test $S_x = 4.5$ $p = .0392... < .05$

              $n = 100$

              $\mu > \mu_0$ reject H_0

   This is strong evidence to think the average cost of textbooks
    is higher than $52.00

7. $H_0 : \mu = 34$ $\mu_0 = 34$ $n = 50$ $Z = -1.3258$

   $H_a : \mu < 34$ $\bar{X} = 32.5$ $\mu < \mu_0$ $p = .0924$

              $S_x = 8$

   T-Test or Z Test   fail to reject H_0 at both 4% & 1%

                            levels

   This is not sufficient evidence that the levels are lower

8. answers will vary

   what was the sample size?
   Is the data good?
   Is the difference significant in a practical way or just a statistical
                                    way?