EDUC 227
FINAL, FALL 05
NAME:
SECTION:

1. At a major restaurant, the manager collected data about the amount spent per customer for dinner for a sample of 49 customers over a 3-week period. He found that the sample mean is $\$ 12.6$ and the sample standard deviation is $\$ 2.8$
$4 \%$ (a) What is the standard error of the mean?
$8 \%$ (b) Construct the $95 \%$ confidence interval for the population mean

4\% (c) Test the hypothesis $\mathrm{H}_{0}=11$ against the alternative hypothesis $\mathrm{H}_{1}$
2. A new diet program claims that participants lose on average 4 kilos. A random sample of 64 people participating in the program showed a sample mean weight loss of 3.5 kilos. The sample standard deviation was 1.2 kilos.

4\% (a) Write in symbols and in English language null and alternative hypotheses appropriate for the situation described above
3. A claim was made that male wages are higher than those of female wages. Two samples of females and males employees with 10 years experience provided the following hourly wages

| Males | Females |
| :--- | :--- |
| $\mathrm{N}_{1}=44$ | $\mathrm{~N}_{2}=32$ |
| $\bar{x}_{1}=\$ 9.25$ | $\bar{x}_{2}=\$ 8.60$ |
| $\mathrm{~S}_{1}=\$ 1.00$ | $\mathrm{~S}_{2}=\$ .80$ |

$4 \%$ (a) Write in symbols and in English language null and alternative hypotheses appropriate to test the claim
$4 \%$ (b) Test equality of the variances using Levine test

16
$8 \%$ (d) Write the $99 \%$ confidence interval for the difference of the males and females population means
4. A survey was made to see if people in the age group 18-22 years spend as much time watching television as much they do reading. The survey of 15 individuals provided the weekly hours watching television and weekly hours of reading as follows:

| Respondent | \# of weekly television <br> watching hours | \# of weekly reading <br> hours |
| :--- | :--- | :--- |
| 1 | 10 | 6 |
| 2 | 14 | 16 |
| 3 | 16 | 8 |
| 4 | 18 | 10 |
| 5 | 15 | 10 |
| 6 | 14 | 8 |
| 7 | 10 | 14 |
| 8 | 12 | 14 |
| 9 | 4 | 7 |
| 10 | 8 | 8 |
| 11 | 16 | 5 |
| 12 | 5 | 10 |
| 13 | 8 | 3 |
| 14 | 19 | 10 |
| 15 | 11 | 6 |

$4 \%$ (a) Determine what kind of t-test is appropriate in this situation and why?

4 \%(b) Write the appropriate and alternative hypotheses in both symbols and English language

16
$8 \%$ (d) Construct the $95 \%$ confidence interval for the difference of the two population means

