* **Problem Set 1: Chapter 10: problems 2, 14, 22, 24; Chapter 11, problems 2, 4, 12, 20**

**Chapter 10**

*t* = ;

= ;

*s= *

*SS* = 

*r*2 = 

1. **Describe what is measured by the estimated standard error in the bottom of the independent measures *t* test.**
2. **Do you view a chocolate bar as delicious or as fattening…?**

**Males Females**

***n* = 6 *n* = 9**

***M* = 31  *M* = 45**

***SS* = 490 *SS* = 680**

1. **Based on these results, is there a significant difference between the attitudes for males and for females? Use a two-tailed test withα  = .05. (.5 points)**
2. **Compute *r*2, the percentage of variance accounted for by the gender differences to measure effect size for this study. (.5 points)**
3. **Compute *r*2, the percentage of variance accounted for by the gender differences to measure effect size for this study.**
4. **Steven Schmidt (1994)…Use a two-tailed test with  = .05**

**Humorous Sentences Nonhumorous Sentences**

**4 5 2 4 6 3 5 3**

**6 7 6 6 3 4 2 6**

**2 5 4 3 4 3 4 4**

**3 3 5 3 5 2 6 4**

1. **A researcher conducts an independent measures research study and obtains *t* = 2.070 with df = 28.**
2. **How many individuals participated in the entire study?**
3. **Using a two-tailed test with a = .05, is there a significant difference between the two treatment conditions.**
4. **Compute *r*2 to measure the percentage of variance accounted for by the treatment effect.**

**Chapter 11**

*t* = 

** =  or ;

*s2**= *

*SS =* 

*r*2 = 

*d* = 

1. **Participants enter a research study with unique characteristics that produce different scores from one person to another. For an independent-measures study, these individual differences can cause problems. Briefly explain how these problems are eliminated or reduced with a repeated-measures study.**
2. **A researcher conducts an experiment comparing two treatment conditions and obtains data with 10 scores for each treatment condition.**
3. **If the researcher used an independent-measures design, how many subjects participated in the experiment?**
4. **If the researcher used a repeated-measures design, how many subjects participated in the experiment?**
5. **If the researcher used a match-subjects design, how many subjects participated in the experiment?**
6. **The stimulant Ritalin has been shown to increase attention span and improve academic performance in children with ADHD…*n* = 25, *MD* = 6.8, *s = 5.5*.**
7. **Is this result sufficient to conclude that Ritalin has a significant effect on attention span? Use a two-tailed test with  = .01.**
8. **Compute *r*2 and an estimated Cohen’s *d* to measure the size of the effect.**
9. **A researcher uses a matched samples design to investigate whether single people who own pets are generally happier than singles without pets. Test with  = .05, two-tailed.**

**Matched Pair Participants from US Pet Owner**

**A 10 15**

**B 9 9**

**C 11 10**

**D 11 19**

**E 5 17**

**F 9 15**