* **Problem Set 1: Chapter 9, problems 4, 12, 14, 22**

1. **Explain why t distributions tend to be flatter and more spread out than the normal distribution.**
2. **Last fall, a sample of *n* = 36 freshmen was selected to participate in a new 4-hour training program:  = 74; *M* = 79.4, *s* = 18.**
3. **On the basis of these data, can the college conclude that the students in the new program performed significantly better than the rest of the freshman class? Use a one-tailed test with  = .05.**
4. **Can the college conclude that the students in the new program are significantly different from the rest of the freshman class? Use a two-tailed test with  = .05.**
5. **In the Preview for this chapter, we discussed a study that examined the effect of eye spot patterns on the behavior of moth eating birds:  = 30; *M* = 37, *SS* = 288, *n* = 9.**
6. **Is this sample sufficient to conclude that the eye-spots have a significant influence on the birds’ behavior? Use a two-tailed test with  = .05.**
7. **Compute the estimated Cohen’s *d* to measure the size of the treatment effect.**
8. **Compute the estimated Cohen’s *d* to measure the size of the treatment effect.**
9. **A researcher would like to examine the effects of humidity on eating behavior. It is known that laboratory rats normally eat an average of  = 21 grams of food each day. The researcher selects a random sample of *n* = 16 rats and places them in a controlled atmosphere room in which the relative humidity is maintained at 90%. The daily food consumption scores for the rats are as follows:**

**14, 18, 21, 15, 18, 18, 21, 18, 16, 20, 17, 19, 20, 17, 17, 19**

* 1. **Can the researcher conclude that humidity has a significant effect on eating behavior? Use a two-tailed test with  = .05.**
  2. **Compute the estimated *d* and *r*2 to measure the size of the treatment effect.**
  3. **Compute the estimated *d* and *r*2 to measure the size of the treatment effect.**