SOC510 Homework #8: Chapter 16 & 18

Due April 13 (Tuesday)

1. Do 16.14 (a); 16.18 (a)
2. Find (1) d.f. (degree of freedom) and (2) critical values using Table C.
   (a) $n = 21$, $\alpha = .05$, 2-tail test
   (b) $n = 26$, $\alpha = .10$, left side 1-tail test
   (c) $n = 27$, $\alpha = .01$, right side 1-tail test
   (d) $n = 1200$, $\alpha = .05$, 2-tail test
   (e) $n = 800$, $\alpha = .02$, left side 1-tail test
   (f) $n = 927$, $\alpha = .01$, right side 1-tail test
3. A random sample of 25 weights is taken from babies born at Lawrence Memorial Hospital. A mean of 7 lb and a standard deviation of 2.5 lb were found for the sample.
   (a) Estimate 90% confidence interval
   (b) Estimate 95% confidence interval
   (c) Estimate 99% confidence interval
   (d) Estimate 95% confidence interval when the sample was 16.
   (e) Test $H_0 : \mu = 8$ at $\alpha = .05$
   (f) Test $H_0 : \mu \geq 8$ at $\alpha = .10$
4. With the following information,

Table 1. Amount of Tire Wear after 1,000 miles

Car	1	2	3	4	5	6
Brand A	125	64	94	38	90	106
Brand B	133	65	103	37	102	115

   (a) Estimate 95% confidence interval of the paired difference, d
   (b) Test $H_a : \mu_d \neq 0$ (i.e., There is difference between brands) at $\alpha = .01$
   (c) Test $H_a : \mu_d < 0$ (i.e., Brand A has less tire wear) at $\alpha = .02$
5. (**Extra Credit: 3 points–No extra points for late submissions**)
   A sociologist is studying the effects of viewing a certain motion picture on the attitude of black men toward white men. 12 black men were randomly selected and asked to fill out a questionnaire before and after viewing the film. The higher score implies the more positive attitude. The scores received by the 12 men are listed in the table.

Table 2.

	1	2	3	4	5	6	7	8	9	10	11	12
Before	10	13	18	12	9	8	14	12	17	20	7	11
After	5	9	13	17	4	5	11	14	13	18	7	12

   (a) Estimate 90% confidence interval of the paired difference, d
   (b) Test $H_a : \mu_d \neq 0$ (i.e., The attitude has not been changed) at $\alpha = .05$
   (c) Test $H_a : \mu_d > 0$ (i.e., The negative attitude has been decreased by viewing the motion picture) at $\alpha = .01$