Independent Samples T-Test Problems

1. An experimenter is interested in whether students score higher on an exam if they review the material after each class or if they review the material, for the same amount of time, at the end of the week. He randomly assigns 20 of his students to two separate review groups.

After each class (X_1)	At the end of the week (X_2)
95	86
87	90
85	94
89	90
91	89
92	88
86	90
85	86
90	92
89	91

a. Conduct an independent samples t-test to determine if there are significant differences in exam scores.
b. Calculate the 90% confidence interval.
c. Calculate the effect size.

2. A psychologist would like to know whether his new experimental method for treating anxiety results in lower anxiety ratings than the conventional method he also uses. He compares the ratings for 11 patients using the experimental method with ratings from 8 patients using the conventional method.

Experimental method	Conventional method
8	10
5	11
3	9
2	7
2	8
3	9
2	8
4	10
4	
3	
6	

a. Conduct the appropriate test to determine if the experimental method significantly reduces anxiety in patients.
b. Calculate the 95% confidence interval.

c. Calculate the effect size.

3. Two separate samples of 8 were taken from a population of college students. One sample sunbathed for 30 minutes a day for a week. The second sample was instructed not to sunbathe. Next, depression scores were taken (0-30) for each sample.

Sunbathe	No sunbathing
11	20
9	22
8	7
15	12
16	9
7	23
20	12
11	11

a. Are there significant differences in depression scores? How do you know?
b. Calculate the 95% confidence interval.
c. Calculate the effect size.

4. A sample of 25 kindergarteners was taken from a local school precinct. Sixteen of them were read fairy tales with cheerful characters. The other nine were read fairy tales with scary characters. The number of nightmares experienced in a month was recorded.

Cheerful	Scary
1	3
0	5
0	7
2	9
7	2
1	6
1	12
1	10
16	4
7	
8	
3	
5	
8	
10	
19	

a. Do children who are read scary stories experience significantly more nightmares than children who are read cheerful stories?

b. Calculate the 95% confidence interval.
c. Calculate the effect size.