Elementary Statistics	**Name:** _____
Study Guide 30	**Due Dates:** _____

Your solutions must be consistent with class notes & resources.

Be Neat, Organized, and No Work $\Leftrightarrow$ No Points

Submit as one file, portrait style, pages in order, and same format.

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1. Ten different families are tested for the number of gallons of water a day they use before and after viewing a conservation video. The table below shows the usage of water for each family.

Before	33	33	38	33	35	35	40	40	40	31
After	34	28	25	28	35	33	31	28	35	33

Table 1:
Water Usage

(a) (2 points) Find $\bar{d}$.

(a) _____

(b) (2 points) Find s_d.

(b) _____

(c) (3 points) Construct a 90% confidence interval for the mean of all differences μ_d.

(c) _____

(d) (1 point) Find the margin of error.

(d) _____

At $\alpha = 0.05$ level of significance, test the claim that the viewing of the conservation video has been effective in reducing water usage by using the data in table 1.

(e) (3 points) Clearly state H_0 , H_1, identify the claim and type of test.

H_0 : _____

H_1 : _____

(f) (3 points) Find all related critical values, draw the distribution, clearly mark and shade the critical region(s). Give the name of the program you used for this step. Drawing & Shading Required.

(g) (2 points) Find the computed test statistic and the P-value.

C.T.S. : _____ **P-Value :** _____

(h) (2 points) Use non-statistical terminology to state your final conclusion about the claim.

(h) _____

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2. The table below shows the weights of eight adults before and after being on a diet for two months.

Before	190	153	183	161	154	153	167	175
After	183	144	181	166	140	155	155	175

Table 2:
Diet Program

(a) (2 points) Find $\bar{d}$.

(a) _____

(b) (2 points) Find s_d.

(b) _____

(c) (3 points) Construct a 95% confidence interval for the mean of all differences μ_d.

(c) _____

(d) (1 point) Find the margin of error.

(d) _____

At $\alpha = 0.01$ level of significance, test the claim that the diet is effective in reducing weight.

(e) (3 points) Clearly state H_0 , H_1, identify the claim and type of test.

H_0 : _____

H_1 : _____

(f) (3 points) Find all related critical values, draw the distribution, clearly mark and shade the critical region(s). <u>Drawing & Shading Required.</u>

(g) (2 points) Find the computed test statistic and the P-value.

C.T.S. : _____ **P-Value :** _____

(h) (2 points) Use non-statistical terminology to state your final conclusion about the claim.

(h) _____

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3. Twelve different students were randomly selected and tested on Friday and Monday. The table below shows results for each student.

Friday	75	83	78	93	65	75	90	80	100	81	68	90
Monday	80	80	75	88	65	73	91	85	95	93	72	86

(a) (4 points) Construct a confidence interval for the mean of all differences μ_d.

(a) _____

At $\alpha = 0.1$ level of significance, test the claim that the giving exams on Mondays helps increasing exam results by using the data in table 3.

(b) (3 points) Clearly state H_0 , H_1, identify the claim and type of test.

H_0 : _____

H_1 : _____

(c) (3 points) Find all related critical values, draw the distribution, clearly mark and shade the critical region(s). <u>Drawing & Shading Required.</u>

(d) (2 points) Find the computed test statistic and the P-value.

C.T.S. : _____ **P-Value :** _____

(e) (2 points) Use non-statistical terminology to state your final conclusion about the claim.

(e) _____

Being perfect can ruin the process of being successful.