

**Instructions:** Show all work to receive full credit. You should note any formulas used or calculator functions used, their inputs and outputs. I cannot grade work if I don't know where an answer came from. Be sure complete all parts of each questions, including requests for interpretation and explanations. Be as thorough as possible.

1. A sample of 249 American cars were tested and found to have a mean gas mileage of 20.1 mpg with a sample standard deviation of 6.41 mpg. A sample of 79 Japanese cars were sampled and found to have a sample mean of 30.01 mpg with a sample standard deviation of 6.11 mpg. Is this sufficient evidence to conclude that the gas mileage of Japanese cars is higher than the gas mileage for American cars?

2-Samp T-Test (Stats)

$$\bar{x}_1 = 20.1$$

$$s_{x_1} = 6.41$$

$$n = 249$$

$$\bar{x}_2 = 30.01$$

$$s_{x_2} = 6.11$$

$$n_2 = 79$$

$\mu_1 < \mu_2$   
Pooled: No

$$H_0: \mu_1 = \mu_2$$

$$H_a: \mu_1 < \mu_2$$

$$t = -12.41 \dots$$

$$p = 0 < .05$$

reject  $H_0$

yes, there is good reason to think Japanese cars have higher mpg than American cars.

2. In a study of patients on sodium-restricted diets, 55 patients with hypertension were studied. Among these, 24 were on sodium-restricted diets. Of 149 patients without hypertension, 36 were on sodium-restricted diets. We would like to know if we can conclude that, in the sampled population, the proportion of patients on sodium-restricted diets is higher among patients with hypertension than among patients without hypertension.

2 Prop ZTest

$$x_1 = 24$$

$$n_1 = 55$$

$$x_2 = 36$$

$$n_2 = 149$$

$$p_1 > p_2$$

$$H_0: p_1 = p_2$$

$$H_a: p_1 > p_2$$

$$z = 2.709 \dots$$

$$p = .0033 \dots < .05$$

reject  $H_0$

yes, there is good reason to think more patients w/ hypertension are on sodium restricted diets than among those w/o hypertension.