

Honors Statistics

7.5 Review

Name _____

Period _____ Date _____

Provide an appropriate response.

- 1) The Metropolitan Bus Company claims that the mean waiting time for a bus during rush hour is less than 7 minutes. A random sample of 20 waiting times has a mean of 5.2 minutes with a standard deviation of 2.1 minutes. At $\alpha = 0.01$, test the bus company's claim. Assume the distribution is normally distributed. Use the traditional method.
- 2) A local group claims that the police issue more than 60 speeding tickets a day in their area. To prove their point, they randomly select two weeks. Their research yields the number of tickets issued for each day. The data are listed below. At $\alpha = 0.01$, test the group's claim using the P-value method.

70 48 41 68 69 55 70
57 60 83 32 60 72 58

- 3) A manufacturer claims that the mean lifetime of its fluorescent bulbs is 1100 hours. A homeowner selects 25 bulbs and finds the mean lifetime to be 1090 hours with a standard deviation of 80 hours. Test the manufacturer's claim. Use $\alpha = 0.05$. Use the P-value method.
- 4) Use a t-test to test the claim $\mu = 18.5$ at $\alpha = 0.01$, given the sample statistics $n = 12$, $\bar{x} = 18$, and $s = 2.1$. Use the traditional method.

7.5 Review Answers

- 1) $t_{cv} = -2.539$; $t = -3.833$; reject null
- 2) P-value: 0.477; fail to reject null
- 3) P-value: 0.538 ; fail to reject null
- 4) $t_{cv} = \pm 3.106$; $t = -0.825$; fail to reject null