

Math 153 - Quiz 11

May 2, 2019

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (5 points) In order to improve efficiency, a company is analyzing the assembly procedure for a certain electrical component. Nine employees are selected at random and timed while assembling the component. Their mean assembly time is 14.29 min. The company is assuming that assembly times are normally distributed with $\sigma = 2.37$ min.

- (a) Find a 95% confidence interval estimate for the true mean assembly time.

Z Interval w/ Stats

$$\sigma = 2.37$$

$$\bar{x} = 14.29$$

$$n = 9$$

$$C\text{-Level} = 0.95$$

$$(12.742, 15.838)$$

- (b) Give an interpretation of your interval in a complete sentence.

WE ARE 95% CONFIDENT THAT THE POPULATION
MEAN ASSEMBLY TIME IS BETWEEN 12.7 MIN AND 15.8
MIN.

- (c) Is it reasonable for the company to assume that the mean assembly time is 16 min?

No. 16 min lies beyond the C.I. estimate.

THE COMPANY SHOULD BE CONFIDENT THAT THE
MEAN IS BETWEEN 12.7 min & 15.8 min.

TAKE-HOME PORTION OF QUIZ 11. DUE TUESDAY.

2. (5 points) A random sample of nationwide ski resorts is obtained, and the single-day ski lift ticket prices (in dollars) are determined:

\$59, \$54, \$53, \$52, \$51, \$39, \$49, \$46, \$49, \$48.

Assume the prices come from a normally distributed population.

- (a) Find a 90% confidence interval estimate for the true mean price of a single-day ski lift ticket.

T Interval w/ Data

(46.92, 53.08)

C-Level = 0.90

- (b) Write an interpretation of your confidence interval in a complete sentence.

WE ARE 90% CONFIDENT THAT THE MEAN PRICE
OF SINGLE-DAY SKI LIFT TICKETS IS BETWEEN
\$46.92 AND \$53.08.

- (c) Based on your result, would you believe someone if they made the claim that the actual mean price is \$46.50? Explain your thinking.

No, BASED ON THE DATA \$46.50 IS TOO LOW.

I EXPECT THE MEAN PRICE IS BETWEEN
\$46.92 & \$53.08.