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Date: 3/12/14

Time: 10:21 AM

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Course: Math 135 Intro to Probability &
Statistics Spring 2014

Book: Triola: Elementary Statistics Using
Excel, 5e

Assignment: ASSN #5-6R

- 6.3.26-T. A common design requirement is that an environment must fit the range of people who fall between the 5th percentile for women and the 95th percentile for men. In designing an assembly work table, the sitting knee height must be considered, which is the distance from the bottom of the feet to the top of the knee. Males have sitting knee heights that are normally distributed with a mean of 21.1 in. and a standard deviation of 1.1 in. Females have sitting knee heights that are normally distributed with a mean of 19.3 in. and a standard deviation of 1.0 in. Use this information to answer the following questions.

What is the minimum table clearance required to satisfy the requirement of fitting 95% of men?

in. (Round to one decimal place as needed.)

Determine if the following statement is true or false. If there is clearance for 95% of males, there will certainly be clearance for all women in the bottom 5%.

- ☐ A. The statement is true because some women will have sitting knee heights that are outliers.
- ☐ B. The statement is false because the 95th percentile for men is greater than the 5th percentile for women.
- ☐ C. The statement is false because some women will have sitting knee heights that are outliers.
- ☐ D. The statement is true because the 95th percentile for men is greater than the 5th percentile for women.

The author is writing this exercise at a table with a clearance of 23.1 in. above the floor. What percentage of men fit this table?

% (Round to two decimal places as needed.)

What percentage of women fit this table?

% (Round to two decimal places as needed.)

Does the table appear to be made to fit almost everyone? Choose the correct answer below.

- ☐ A. The table will only fit 1% of women.
- ☐ B. The table will fit only 3% of men.
- ☐ C. The table will fit almost everyone except about 3% of men with the largest sitting knee heights.
- ☐ D. Not enough information to determine if the table appears to be made to fit almost everyone.