

Student: Bernadette Gonzales

Date: 3/12/14

Time: 10:26 AM

Instructor: Denise White

Course: Math 135 Intro to Probability &
Statistics Spring 2014

Book: Triola: Elementary Statistics Using
Excel, 5e

Assignment: ASSN #5-6R

- 6.5.11. The capacity of an elevator is 12 people or 1896 pounds. The capacity will be exceeded if 12 people have weights with a mean greater than $1896 / 12 = 158$ pounds. Suppose the people have weights that are normally distributed with a mean of 166 lb and a standard deviation of 29 lb.

a. Find the probability that if a person is randomly selected, his weight will be greater than 158 pounds.

The probability is approximately . (Round to four decimal places as needed.)

b. Find the probability that 12 randomly selected people will have a mean that is greater than 158 pounds.

The probability is approximately . (Round to four decimal places as needed.)

c. Does the elevator appear to have the correct weight limit? Why or why not?

- ☐ A. No, 12 randomly selected people will never be under the weight limit.
- ☐ B. Yes, 12 randomly selected people will always be under the weight limit.
- ☐ C. Yes, there is a good chance that 12 randomly selected people will not exceed the elevator capacity.
- ☐ D. No, there is a good chance that 12 randomly selected people will exceed the elevator capacity.

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- 6.5.22-T. Before every flight, the pilot must verify that the total weight of the load is less than the maximum allowable load for the aircraft. The aircraft can carry 42 passengers, and a flight has fuel and baggage that allows for a total passenger load of 6,972 lb. The pilot sees that the plane is full and all passengers are men. The aircraft will be overloaded if the mean weight of the passengers is greater than $\frac{6,972 \text{ lb}}{42} = 166 \text{ lb}$. What is the probability that the aircraft is overloaded? Should the pilot take any action to correct for an overloaded aircraft? Assume that weights of men are normally distributed with a mean of 173.7 lb and a standard deviation of 38.8.

The probability is approximately .

(Round to four decimal places as needed.)

Should the pilot take any action to correct for an overloaded aircraft?

- ☐ A. No. Because the probability is high, the aircraft is safe to fly with its current load.
- ☐ B. Yes. Because the probability is high, the pilot should take action by somehow reducing the weight of the aircraft.

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- 6.7.11-T. Use a normal approximation to find the probability of the indicated number of voters. In this case, assume that 111 eligible voters aged 18-24 are randomly selected. Suppose a previous study showed that among eligible voters aged 18-24, 22% of them voted.

Probability that exactly 27 voted

The probability that exactly 27 of 111 eligible voters voted is .

(Round to four decimal places as needed.)

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- 6.7.19. In a survey of 1461 people, 1125 people said they voted in a recent presidential election. Voting records show that 75% of eligible voters actually did vote. Given that 75% of eligible voters actually did vote, (a) find the probability that among 1461 randomly selected voters, at least 1125 actually did vote. (b) What do the results from part (a) suggest?

(a) $P(X \geq 1125) = \square$ (Round to four decimal places as needed.)

(b) What does the result from part (a) suggest?

- ☐ A. People are being honest because the probability of $P(x \geq 1125)$ is less than 5%.
- ☐ B. Some people are being less than honest because $P(x \geq 1125)$ is at least 1%.
- ☐ C. Some people are being less than honest because $P(x \geq 1125)$ is less than 5%.
- ☐ D. People are being honest because the probability of $P(x \geq 1125)$ is at least 1%.

