Answer on Question #74519 – Math – Statistics and Probability

A plumber loads his truck each morning with faucets that will be needed for the service calls and other emergency calls that come in that day. Based on past experience, the number, N, of faucets required each day has the following distribution: The expected value of N is then 1.9 faucets required each day.

Question

a. Each faucet requires 25 minutes to install. What is the expected number of minutes the plumber will spend each day installing faucets?

Answer:

$$25 \cdot 1.9 = 47.5\ minutes$$

Question

b. The plumber loads 5 faucets in his truck each day. Over all days, what is the average number of faucets he can expect to have left at the end of the day?

Answer:

$$5 - 1.9 = 3.1\ faucets$$

Question

c. Each faucet costs the plumber $\$15.80$ at the plumbing supplies store. What is the expected cost for all replacement faucets that are installed each day?

Answer:

$$15.80 \cdot 1.9 = \$32.02$$

Question

d. If the variance of the number of faucets required each day is 0.79 , what is the standard deviation of the cost of the replacement faucets installed each day?

Answer:

$$\sigma = 15.80 \cdot \sqrt{0.79} = \$14.04$$