

**Question 1****0.5 points**

Save Ans

A clinic examined  $\mu$  50 people in one day and tested them for COVID-19. The probability of being infected with the virus at this point in time is 20%. Let the binomial random variable  $X$  represented the number of people found to be infected with the virus. You want to use a normal approximation to the binomial to compute  $P(8 < X \leq 12)$ . Which continuity correction should you use?

$$\mu = 50$$

$$P = 0.2$$

$$P(8 < X < 12)$$

**Question 2****1 points**

The daily usage time on the Apple iPhone is normally distributed with mean 5.4 hours and standard deviation 1.2 hours. What proportion of iPhone owners use their iPhone for more than 6 hours in a day? Round your answer to three decimal places.

$$\mu = 5.4 \text{ hrs} ; \quad \sigma = 1.2 \text{ hrs}$$

$$P(X > 6) = \text{normalcdf}(6, 1E99, 5.4, 1.2) = 0.309$$

**Question 3****1 points**

Save

The daily usage time on the Apple iPhone is normally distributed with mean 5.4 hours and standard deviation 1.2 hours. What proportion of iPhone owners use their iPhone between 4 and 7 hours in a day? Round your answer to three decimal places.

$$\mu = 5.4 ; \quad \sigma = 1.2$$

$$P(4 < X < 7) = \text{normalpdf}(4, 7, 5.4, 1.2) = 0.787$$

**Question 4****1 points**

Save

The daily usage time on the Apple iPhone is normally distributed with mean 5.4 hours and standard deviation 1.2 hours. What proportion of iPhone owners use their iPhone for less than 3 hours in a day? Round your answer to three decimal places.

$$P(X < 3) = \text{normalcdf}(-1E99, 3, 5.4, 1.2) = 0.0228$$

**Question 5****1 points**

Save Answer

The daily usage time on the Apple iPhone is normally distributed with mean 5.4 hours and standard deviation 1.2 hours. Suppose you survey 3 of your friends who have iPhones. What is the probability that their mean usage time is less than 4 hours? Round your answer to three decimal places.

$$\mu = 5.4 \quad \sigma = 1.2 \quad , \quad n = 3$$

$$P(\bar{X}_{n=3} < 4) = \text{normalcdf}(-1E99, 4, 5.4, 1.2/\sqrt{3}) = 0.0217$$

# Question 6

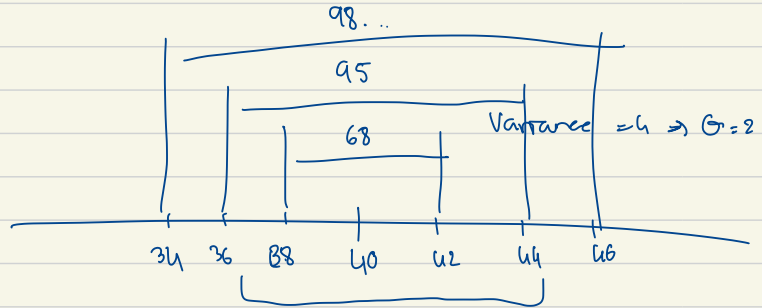
1 points

Save Answer

The daily usage time on the Apple iPhone is normally distributed with mean 5.4 hours and standard deviation 1.2 hours. Suppose you survey 5 of your friends who have iPhones. What is the probability that the sum of their usage times is less than 30 hours? Round your answer to three decimal places.

$$n = 5 ; \quad \mu = 5.4 \quad \sigma = 1.2$$

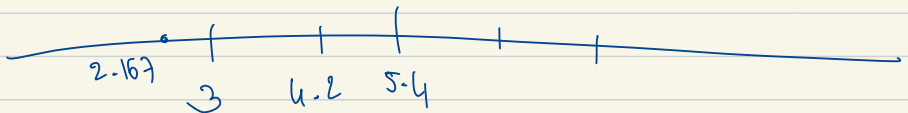
$$P(\underbrace{x_1 + x_2 + x_3 + x_4 + x_5}_{5} < \underbrace{30}_{5}) = P(\bar{x}_5 < 6) = \text{normalcdf}(-1E99, 6, 5.4, 1.2/\sqrt{5}) = 0.868$$



#9

$$\sigma = 1.2 \quad \mu = 5.4$$

$$z\text{-score} = \quad z = \frac{8 - 5.4}{1.2} = 2.167$$



**Question 10****1 points** Save

The daily usage time on the Apple iPhone is normally distributed with mean 5.4 hours and standard deviation 1.2 hours. How many hours corresponds to the top 10% of iPhone usage times? Round your answer to ONE decimal place. Type only the number, and NOT the word "hours".

$$\mu = 5.4 ; \sigma = 1.2 ; p = 0.1 \Rightarrow 90^{\text{th}} \text{ percentile}$$

$$0.9 = P(X < x???)$$

$$x = \text{InvNorm}(0.9, 5.4, 1.2, \text{left}) = \boxed{6.9}$$

**Question 11****1 points** Save

The daily usage time on the Apple iPhone is normally distributed with mean 5.4 hours and standard deviation 1.2 hours. How many hours corresponds to the 25th percentile? Round your answer to ONE decimal place. Type only the number, and NOT the word "hours".

$$X = \text{InvNorm}(0.25, 5.4, 1.2, \text{left}) = \boxed{4.6}$$

**Question 12****1 points** Save Ans

The daily usage time on the Apple iPhone is normally distributed with mean 5.4 hours and standard deviation 1.2 hours. How many hours corresponds to the lower 10% of iPhone usage times? Round your answer to ONE decimal place. Type only the number, and NOT the word "hours".

$$X = \text{InvNorm}(0.1, 5.4, 1.2, \text{left}) = \boxed{3.9}$$