

Part 1. Multiple choice questions

(1 point) What is a statistic?

Part 2 Calculation questions

Answer the question in full details

(2 points) [] On a given day, of all surveyed teenagers in a high school, 60% used WhatsApp, 90% used Facebook, and 55% used both WhatsApp and Facebook

- a If a randomly selected teenager is known to have used Facebook, what is the probability that she or he also used WhatsApp?**
- b What is the probability that a randomly selected teenager uses either Facebook, or WhatsApp or both?**

(6 points) [] Statistics Canada wanted to find the distribution of ages of working women living in Canada who were single mothers. The researcher drew a random sample of some set 300 families from the govms. T M

(3 points) [The weight of a salmon is normally distributed with a mean of 1.8 kg and a standard deviation of 0.2 kg

- What percentage of salmon weigh more than 2 kg?
- What percentage of salmon weigh less than 1.5 kg?
- Find the value b such that 11.5% of salmon weigh less than b kg

(3 points) Suppose a random sample of 25 students is selected from a community college where the scores on the final exam (out of 125 points) are normally distributed having mean equal to 112 and standard deviation equal to 12

- Find the mean and the standard deviation of the sampling distribution of the sample mean \bar{x}
- Find the probability that \bar{x} exceeds 116
- Find the probability that the sample mean deviates from the population mean $\mu = 112$ by more than 4

(2 points) An airline executive estimates that 25% of all flights arrive late. How many flights must we include in a simple random sample if we want to be 90% confident that the true population proportion of flights that arrive late lies within 0.01 of our sample proportion? Justify your conclusion

(5 points) [The proportion of individuals with an Rh positive blood type is 85%. You have a random sample of $n = 500$ individuals

- What are the mean and standard deviation of \hat{p} , the sample proportion with Rh positive blood type?
- Is the distribution of \hat{p} approximately normal? Justify your answer.
- What is the probability that the sample proportion \hat{p} exceeds 85%?
- What is the probability that the sample proportion \hat{p} lies between 83% and 87%?
- Between which two limits would the sample proportion lie 99% of the time?

(4 points) The length of duration, in minutes, of earthquakes in British Columbia has been recorded for future analysis and information. The length of duration of a random sample of six earthquakes is as follows: 1.1, 0.9, 1.5, 0.7, 1.4, 0.9 min. - SD " , m

