Review Assignment

ECON 4753 — University of Arkansas

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Question 1

(a) What does $\sum_{i=1}^{5}(i-3)$ equal?

(b) You observe a sample, $x = (2, 7, 10, 6, 8)$. Calculate the sample mean, $\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$.

Question 2

This question is based on our review of statistics. Say you observe a sample of workers from a firm with sample size $n = 100$. You observe their wages w_i and want to estimate the average wage at the firm. You estimate the following statistics in your sample: $\bar{w} = 17.53$ and $\text{var}(w) = 4.2$.

(a) Given this information what is the (approximate) sample distribution of the sample mean?

(b) Form a 95% confidence interval for your sample mean. Interpret this in words.

(c) Another student claims the average worker earns \$17. Using your confidence interval, would you reject this null with a 5% significance level?

Question 3

This question is based on our review of statistical inference. A researcher collects data on the daily coffee consumption (in ounces) of college students to estimate the average consumption on campus. From a random sample of $n = 64$ students, they calculate the following sample statistics: $\bar{c} = 12.8$ and $s = 3.2$.

(a) What is the approximate sample distribution of the sample mean?

(b) A health organization claims that college students consume an average of 15 ounces of coffee per day. Using a 95% confidence interval, would you reject this claim at a 5% significance level? Explain your reasoning.