

STAT 3309

EXCEL HW 2

Due: SAT, APR 15

A. Discrete Distribution-Continuous Distribution

A1. Find each of the following probabilities, **using EXCEL**,

- a $P(0 \leq z \leq 1.5)$
- b $P(z \geq 2)$
- c $P(z \leq 1.5)$
- d $P(z \geq -1)$
- e $P(z \leq -3)$
- f $P(-1 \leq z \leq 1)$
- g $P(-2.5 \leq z \leq .5)$

A2. Suppose that the random variable x is normally distributed with mean $\mu = 1,000$ and standard deviation $\sigma = 100$. Find each of the following probabilities, **(perform operations on EXCEL)**

- a $P(1,000 \leq x \leq 1,200)$
- b $P(x > 1,257)$
- c $P(x < 1,035)$
- d $P(857 \leq x \leq 1,183)$
- e $P(x \leq 700)$
- f $P(812 \leq x \leq 913)$

B. Chapter 8: Confidence Intervals.

B1. Open GasMiles.xlsx. Perform a Descriptive statistics from EXCEL. Use the **stadand error (se)** from the summary. Calculate 95%, 98%, 99% Confidence Intervals for the population mean. **(perform operations on EXCEL)**

- (a) 95% CI
- (b) 98% CI
- (c) 99% CI.

B2. Problem on Page 4 (need PHSTAT2)

(h) F-statistic = 4.812; P-value = 0.047

(4) From the Coefficients part,

(i) $\beta_0 =$ _____ ; the standard error of the Intercept 4.812

t-stat = _____ ; P-value = _____

(j) Slope $\beta_1 =$ _____ the standard error of the Intercept ; _____

t-stat = _____ ; P-value = _____

(k) Write equation of the regression line:

$$\hat{y} = \beta_0 + \beta_1 x$$

C2

Rayburn's Christmas Tree Farm has 2500 trees that are mature and ready to be cut and sold. Twenty-eight trees are randomly selected and their heights measured. The heights in inches are as follows:

56	71	73	54	44	48	61	61	48	53	62	73	59	65
64	56	72	56	70	54	60	67	43	47	35	71	45	57

INSTRUCTIONS (use PHSTAT2)

* Enter label and data in column A.

* Construct a confidence interval for the data set:

Click on: PHStat, CONFIDENCE INTERVALS, then
ESTIMATE FOR THE MEAN, SIGMA UNKNOWN

Enter the appropriate confidence level.

Choose SAMPLE STATISTICS UNKNOWN

Enter the SAMPLE CELL RANGE [cells (in column A) where data is located].

* Also include Descriptive Statistics (as on Homework #1).

Answer the following:

1. Give a point estimate for μ (label it).
2. Give the standard error of $\bar{X}$ (label it).
3. Give the 99% confidence interval for μ .
4. Interpret (in context) the interval in #3.
5. If the trees sell for \$4.20 per foot, use the interval in #3 to give a lower and upper bound estimate on the value of the 2500 trees with 99% confidence.
SHOW YOUR WORK!!
6. Give the standard deviation (label it).
7. Calculate the margin of error **by hand** using only the information you gave in #1 and/or #2, and a value from the appropriate statistical table.
8. Again, using only the information in #1 and/or #2, and a value from the appropriate statistical table, calculate (**by hand**) a 95% confidence interval for μ .
9. How large a sample must you obtain if you want to be 92% confident that the sample mean is within 0.85 inches of the true mean?

Do not calculate anything that has already been calculated by EXCEL.