

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.slsx. 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)

C. Chapter 9: Hypothesis Testing

Open Height-Weight.xlsx. Suppose these data to be sample data from a large population. ,
(perform operations on EXCEL),

C1. Test the Hypothesis: $H_0 : \mu = 170$

$H_a : \mu \neq 170$

μ is the population average for Height. $\alpha = 0.05$

C2. On page 6

D. Chapter 13: Simple Linear Regression

Open file: Height-Weight.xlsx. The table gives Height (in centimeters) and Weight (in kilograms), for a sample of $n = 15$, 18 years old girls. Interest in predicting the weight from height.

Draw a scatterplot of Weight on the vertical, versus Height on the horizontal. Notice any pattern.

(1) Calculate the coefficient of correlation r

(2) From the Summary Output:

(a) Coefficient of determination $R =$ _____

(b) $R^2 =$ _____

(c) Standard error (of the residuals)= _____

(d) Number of observations= _____

(3) From the ANOVA (Analysis of Variance) output:

SS (Sum of Squares); df (degree of freedom); MS (Mean Square)

(e) $SS_{Reg} =$ _____ ; $df_{Reg} =$ _____ ; $MS_{Reg} =$ _____ ;

(f) $SS_{Res} =$ _____ ; $df_{Res} =$ _____ ; $MS_{Res} =$ _____

(g) $SS_{Total} =$ _____ ; $df_{total} =$ _____ ;

(h) F-statistic = _____; P-value = _____

(4) From the Coefficients part,

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

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:

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