1. Routine physical examinations are conducted annually as part of a health service program for the employees. It was discovered that 8% of the employees needed corrective shoes, 15% needed major dental work and 3% needed both corrective shoes and major dental work. What is the probability that an employee selected at random will need either corrective shoes or major dental work?
   A) 0.20
   B) 0.25
   C) 0.50
   D) 1.00
   E) None of the above

2. A lamp manufacturer has developed five lamp bases and four lampshades that could be used together. How many different arrangements of base and shade can be offered?
   A) 5
   B) 10
   C) 15
   D) 20

Chapter 7

3. The mean amount spent by a family of four on food per month is $500 with a standard deviation of $75. Assuming that the food costs are normally distributed, what is the probability that a family spends less than $410 per month?
   A) 0.2158
   B) 0.8750
   C) 0.0362
   D) 0.1151

Chapter 9

4. A state meat inspector in Texas has been given the assignment of estimating the mean net weight of packages of ground turkey labeled "3 pounds." Of course, she realizes that the weights cannot be precisely 3 pounds. She takes a sample of 36 packages, and found that the mean weight is 3.01 pounds, with a standard deviation of .03 pounds. Determine a 95% confidence interval for the population mean.

Chapter 10

5) Texas Agriculture Real Estate Company specializes in selling farm property in the state of Texas. Its records show that the mean selling time of farm property is 90 days. Because of recent drought conditions, the agency believes that the mean selling time is now greater than 90 days. A statewide survey of 100 farms sold recently revealed that the mean selling time was 94 days with a sample standard deviation of 22 days. At the .01 significance level and using the steps of hypothesis testing, can the company conclude there has been an increase in selling time?

a) One tailed or Two tailed? _____

b) Step 1: State the null hypothesis and the alternate hypothesis.

Null: There has not been an increase in the selling time of 90 days.
Alternate: There has been an increase in the selling time of 90 days.

$H_0 : \mu$ _____ 90 (what symbol goes in each)
$H_1 : \mu$ _____ 90

c) Step 2: Select the level of significance. _____

d) Step 3: Select the test statistic.

t or z? Why? _____

e) Step 4: Formulate a decision rule.

What is the cut off? _____

f) Calculate the z or t:

g) Step 5: Make a decision ***and (h)*** interpret the result. (what can you conclude?)

i) What is the p-value?

6) A recent survey of college freshman revealed that the average freshman got 7 hours of sleep per night. A random sample of 50 students at TAMU-Commerce showed the mean number of hours slept the night before was 6 hours and 48 (6.8 hours), with a standard deviation of the sample of .9 hours. At the .05 significance level and using the steps of hypothesis testing, can TAMU-C conclude that their freshman sleep less than the typical American freshman?

a) One tailed or Two tailed? _____

b) Step 1: State the null hypothesis and the alternate hypothesis.

Null: Students get 7 or more hours of sleep.
Alternate: Students get less than 7 hours of sleep.

H_0 : μ _____ 7 (what symbol goes in each)
H_1 : μ _____ 7

c) Step 2: Select the level of significance. _____

d) Step 3: Select the test statistic.

t or z? Why? _____

e) Step 4: Formulate a decision rule.

What is the cut off? _____

f) Calculate the z or t:

g) Step 5: Make a decision ***and (h)*** interpret the result. (what can you conclude?)

i) What is the p-value?

Chapter 11

7) Maxwell House Coffee is interested in whether the mean daily consumption of regular-coffee drinkers is less than that of decaf-coffee drinkers. Assume the population standard deviation for those drinking regular coffee is 1.20 cups per day and 1.36 cups per day for those drinking decaf. A random sample of 50 regular-coffee drinkers showed a mean of 4.35 cups per day. A sample of 40 decaf drinkers showed a mean of 5.84 cups per day. Using the steps in hypothesis testing, is there a significant difference in the two populations of coffee drinkers? (.05 significance level)

a) One tailed or Two tailed? _____

b) Step 1: State the null hypothesis and the alternate hypothesis.

Population 1 (regular coffee drinkers) = μ_1
Population 2 (decaf coffee drinkers) = μ_2

Null: There is no difference between the mean number of cups for regular coffee drinkers and decaf drinkers.
Alternate: The two means of the two types of drinkers is not equal.

H_0 μ_1 _____ μ_2 (what symbol goes in each)
H_1 μ_1 _____ μ_2

c) Step 2: Select the level of significance. _____

d) Step 3: Select the test statistic.

t or z? Why? _____

e) Step 4: Formulate a decision rule.

What is the cut off? _____

f) Calculate the z or t:

g) Step 5: Make a decision ***and (h)*** interpret the result. (what can you conclude?) From a marketing standpoint, what could Maxwell House conclude about the coffee drinkers and how should they market their coffee?

i) What is the p-value?

8) Cingular offers two plans to its subscribers: Plan A and Plan B. When new subscribers sign up, they are asked to provide demographic information. From this information, Cingular has found the following: The mean yearly income for a sample of 40 subscribers to Plan A is $57,000 with a sd of $9,200; The mean yearly income for a sample of 30 subscribers to Plan B is $61,000 with a sd of $7,100. At the .05 significance level and using the steps to hypothesis testing, is it reasonable to conclude the mean income of those selecting Plan B is larger than Plan A?

a) One tailed or Two tailed? _____

b) Step 1: State the null hypothesis and the alternate hypothesis.

Population 1 (Plan A) = μ_A
Population 2 (Plan B) = μ_B

Null: Plan B is not larger than Plan A.
Alternate: Plan B is larger than Plan A.

H_0 μ_A_____ μ_B (what symbol goes in each)
H_1 μ_A_____ μ_B

c) Step 2: Select the level of significance. _____

d) Step 3: Select the test statistic.

t or z? Why? _____

e) Step 4: Formulate a decision rule.

What is the cut off? _____

f) Calculate the z or t:

g) Step 5: Make a decision ***and (h)*** interpret the result. (what can you conclude?)

i) What is the p-value?

Chapter 13

9. Assume the least squares equation is $Y' = 10 + 20X$. What does the value of 10 in the equation indicate?
   A) Y intercept
   B) For each unit increased in Y, X increases by 10
   C) For each unit increased in X, Y increases by 10
   D) None of the above

Use the following to answer questions :

A sales manager for an advertising agency believes there is a relationship between the number of contacts and the amount of the sales. To verify this believe, the following data was collected:

Salesperson	Number of Contacts	Sales (in thousands)
1	14	24
2	12	14
3	20	28
4	16	30
5	46	80
6	23	30
7	48	90
8	50	85
9	55	120
10	50	110

10. What is the dependent variable?
    A) Salesperson
    B) Number of contacts
    C) Amount of sales
    D) All the above

11. What is the independent variable?
    A) Salesperson
    B) Number of contacts
    C) Amount of sales
    D) All the above

12. What is the Y-intercept of the linear equation?
    A) –12.201
    B) 2.1946
    C) –2.1946
    D) 12.201

13. What is the slope of the linear equation?
    A) –12.201
    B) 12.201
    C) 2.1946
    D) –2.1946

14. What is the value of the coefficient of correlation?
    A) 0.6317
    B) 0.9754
    C) 0.9513
    D) 9.3104