

**Circle your Section Number and Instructor:**

<b>001</b>	<b>002</b>	<b>003</b>	<b>004</b>	<b>005</b>	<b>006</b>	<b>007</b>
<b>Crabari</b>	<b>McKillip</b>	<b>Speiss</b>	<b>Tennenhouse</b>	<b>Yacoub</b>	<b>McKillip</b>	<b>Crabar</b>

**On the next page please write your name again. This sheet is a cover sheet for your total points.**

**Do not write below this line.**

**Part 1 :Multiple choice:**

**TOTAL POINTS PART 1** \_\_\_\_\_  
**51 possible**

**Part 2: Partial credit ( 6 each)**

**1.** \_\_\_\_\_

**6a** \_\_\_\_\_

**2.** \_\_\_\_\_

**6b.** \_\_\_\_\_

**3a.** \_\_\_\_\_

**7a.** \_\_\_\_\_

**3b.** \_\_\_\_\_

**7b.** \_\_\_\_\_

**3c.** \_\_\_\_\_

**7c.** \_\_\_\_\_

**4a.** \_\_\_\_\_

**7d.** \_\_\_\_\_

**4b.** \_\_\_\_\_

**8a.** \_\_\_\_\_

**4c.** \_\_\_\_\_

**8b.** \_\_\_\_\_

**5a.** \_\_\_\_\_

**TOTAL PART 2** \_\_\_\_\_

**5b.** \_\_\_\_\_

**114 POSSIBLE**

**5c.** \_\_\_\_\_

**TOTAL POINTS PART 1 AND 2** \_\_\_\_\_

**165 POSSIBLE**

Name \_\_\_\_\_

The final is divided into two parts. The first part is multiple choice. The problems are worth 3 each. The second part is a partial-credit short answer part. **Please show all your work.** This part is worth 6 points for each question. Write neatly.

Have a great Holiday!

Each question worth 3 points:

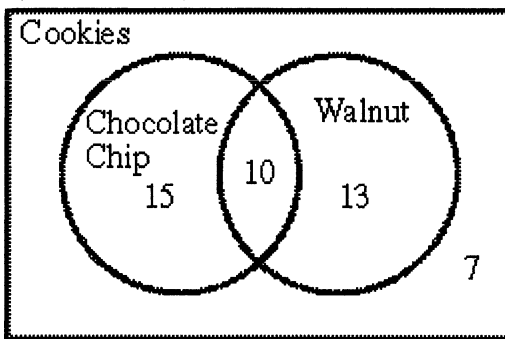
**MULTIPLE CHOICE.** Choose the one alternative that best completes the statement or answers the question.

**The argument given or described involves some kind of fallacy. Identify the fallacy.**

- 1) When confronted with questions from the press about alleged scandals, a congressman replies that the allegations against him should be ignored since his accuser is part of a vast right-wing conspiracy. 1) \_\_\_\_\_
- A) Limited choice  
 B) Appeal to popularity  
 C) Personal attack (ad hominem)  
 D) Circular reasoning

**Solve the problem.**

- 2) The following Venn diagram describes the types of cookies in a bakery. Use it to determine how many chocolate chip cookies do not also have walnuts. 2) \_\_\_\_\_



- A) 10                      B) 32                      C) 15                      D) 25

**Use the following table of exchange rates to solve the problem.**

Currency	Dollars per Foreign	Foreign per Dollar
British pound	1.678	0.5958
Canadian dollar	0.7483	1.336
European euro	1.169	0.8554
Japanese yen	0.008482	117.9
Mexican peso	0.0943	10.6045

Round your answer, if appropriate.

- 3) Which is worth most, 1 British pound, 1 Canadian dollar, 1 European euro, or 1 dollar? 3) \_\_\_\_\_
- A) 1 Canadian dollar                      B) 1 European euro  
 C) 1 British pound                      D) 1 dollar

**Answer the question.**

- 4) In 2000 a company increased its workforce by 60%. In 2001 it decreased its workforce by 60%. How does the size of its workforce at the end of 2001 compare with the size of the workforce at the beginning of 2000? 4) \_\_\_\_\_
- A) It is unchanged.                      B) It is 36% lower.  
 C) It is 6% lower.                      D) It is 36% higher.

**Find the annual percentage yield (APY).**

- 5) A bank offers an APR of 5.4% compounded monthly. 5) \_\_\_\_\_  
A) 0.45%                      B) 11.07%                      C) 5.54%                      D) 0.90%

**Solve the problem.**

- 6) For the study described below, identify the sample. 6) \_\_\_\_\_

A bank manager wants to know the average amount of time customers of his bank have to wait in line. 300 customers were polled and asked their average wait time at the bank. 27 of the 300 were extremely dissatisfied with the amount of time they had had to wait in line in recent months.

- A) The customers who were waiting in line at the bank the day of the poll  
B) The 27 people who were dissatisfied.  
C) All customers of the bank  
D) The 300 customers polled

**A sample statistic and margin of error are given. Find the confidence interval likely to contain the population parameter of interest and answer the question.**

- 7) Following the Republican National Convention, a poll of voters in a Central Illinois community showed that 56.9% would choose the Republican ticket to win over the Democrat ticket no matter whom the Democrats chose for vice-president. The margin of error was 5.2 percentage points. Should the Democrats expect to lose Central Illinois? 7) \_\_\_\_\_  
A) 54.3% to 59.5%; yes                      B) 56.9% to 62.1%; yes  
C) 51.7% to 62.1%; yes                      D) 46.5% to 56.9%; no

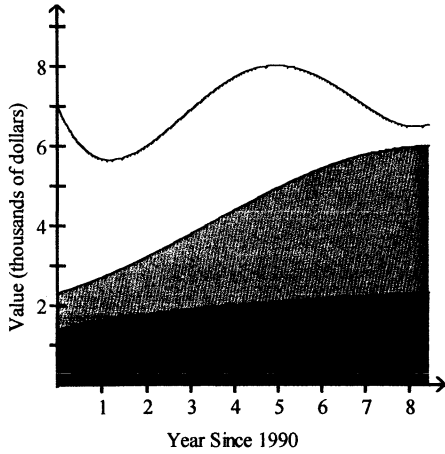
**Identify which of these types of sampling is used: random, stratified, systematic, or convenience.**

- 8) 49 students are selected at random from the Sophomore class, 39 from the Junior class, and 48 from the Senior classes. 8) \_\_\_\_\_  
A) Random                      B) Convenience                      C) Systematic                      D) Stratified

**Determine whether the study involves selection bias, participation bias, both selection bias and participation bias, or neither.**

- 9) You are interested in the degree of satisfaction amongst customers at your video store. For one week, you hand a customer satisfaction questionnaire to every customer who comes into the store and ask them to fill it out and place it in a box after they check out. 9) \_\_\_\_\_  
A) Participation Bias                      B) Participation Bias and Selection Bias  
C) No Bias                      D) Selection Bias

The stack plot below shows the value of each of Danny's investments. The stack plot contains three regions. The uppermost unshaded region represents the value of Danny's investment in individual stocks. The center shaded region represents the value of Danny's investment in mutual funds and the bottom region in black represents the value of Danny's investment in a CD. The thickness of a region at a particular time tells you its value at that time.



Use the graph to answer the question.

- 10) In which year was the value of Danny's investment in individual stocks the least? 10) \_\_\_\_\_  
 A) 1991                      B) 1997                      C) 1998                      D) 1990

Find the indicated probability.

- 11) A bag contains 13 balls numbered 1 through 13. What is the probability that a randomly selected ball has an even number? 11) \_\_\_\_\_  
 A)  $\frac{2}{13}$                       B)  $\frac{1}{2}$                       C)  $\frac{13}{6}$                       D)  $\frac{6}{13}$

Solve the problem.

- 12) Find the odds for drawing an ace when a card is drawn at random from a normal deck of 52 playing cards. 12) \_\_\_\_\_  
 A) 1 to 13                      B) 12 to 1                      C) 13 to 1                      D) 1 to 12
- 13) In Morse code, each symbol is either a dot or a dash. How many sequences of 10 symbols are possible? 13) \_\_\_\_\_  
 A) 1024                      B) 100                      C) 3,628,800                      D) 20
- 14) A musician plans to perform 5 selections for a concert. If he can choose from 8 different selections, how many ways can he arrange his program? 14) \_\_\_\_\_  
 A) 6720                      B) 56                      C) 32,768                      D) 40
- 15) A student is told to answer any 7 out of 10 questions on an exam. In how many different ways can he choose the 7 questions to answer? 15) \_\_\_\_\_  
 A) 21                      B) 720                      C) 10,000,000                      D) 120

**Provide an appropriate response.**

- 16) The Consumer Price Index is increasing at a rate of 5% per year. What is its doubling time? Use the approximate doubling time formula (rule of 70). 16) \_\_\_\_\_
- A) 10 years                      B) 32 years                      C) 14 years                      D) 3.5 years

**Determine whether the growth (or decay) is linear or exponential, and answer the associated question.**

- 17) The population of Scoville is increasing at a rate of 310 people per year. If the population is 609 today, what will it be in three years? 17) \_\_\_\_\_
- A) Exponential; 225,866,839 people                      B) Exponential; 29,791,609 people  
C) Linear; 1539 people                      D) Linear; 2137 people

Part II: On the following please show all your work. (Point value on this part is 6 points each question)

1. Decide the best option on the following. Show your work.

Which would be the better buy and why? You are buying carpet and need 10 square yards.

Option 1: Carpet is priced at \$41.95 per square yard.

Option 2: Another store sells the same type of carpet by the square foot and it is priced at \$4.95 per square foot.

1. \_\_\_\_\_

2. Show your unit conversion on the following:

You need \$24 million and earn \$12 an hour. How many years would it take you to earn this if you work an 8 hour day and work 260 days per year?

2. \_\_\_\_\_

3. Answer the following percent problems using the following data:

a. In 2007 (this year) there are 15,000 homeless people in the Denver Metro area. This is an increase of 22% over last year. How many homeless people were there last year?

3a. \_\_\_\_\_

b. It is projected that in 2008 the number of homeless people will be a 30% decrease over the 2007 figure of 15,000. How many homeless people will there be in 2008?

3b. \_\_\_\_\_

c. If instead, the number of homeless next year (2008) is 16255, what percent increase is that from the 2007 figure of 15,000?

3c. \_\_\_\_\_

4. Finance Problems

- a. Dan plans to replace his tables and booths at his diner in four years and wants to make quarterly payments into an account with an APR of 3.5 % to save for this. The cost will be about \$60,000. What amount should the quarterly payments be?

4a. \_\_\_\_\_

- b. Dan realizes he will be unable to save for this and decides when the time comes he will take out a Loan. If the APR is 7%, and he borrows for 5 years what will his monthly payments be?

4b. \_\_\_\_\_

- c. What will he pay in interest on the loan?

4c. \_\_\_\_\_

5. Fourteen randomly selected adults were asked how much education they had received (not including kindergarten), given in years. The following results were obtained

12	15	10	16	16	20	11
17	16	15	8	12	14	18

- a.) Find the mean.

5a. \_\_\_\_\_

- b.) Find the median.

5b. \_\_\_\_\_

- c.) Find the mode.

5c. \_\_\_\_\_

6. Container A has 6 blue marbles and 4 purple marbles, and container B has 2 purple marble and 3 green marbles. An experiment consists of randomly selecting a marble from container A and then selecting a marble from container B.

a. What is the probability of selecting two purple marbles?

6a. \_\_\_\_\_

b. What is the probability of selecting a blue and green?

6b. \_\_\_\_\_

7. A statistical study was done on the senior class at Littleton High. The study is summarized by the following table. Use it to answer the questions below.

	Graduated	Did not graduate
Male	58	12
Female	22	8

a. Draw a 2 circle Venn Diagram to represent the data.

b. What would be the probability a student is female or graduated?

7b. \_\_\_\_\_

c. What would be the probability a student is male or did not graduate?

7c. \_\_\_\_\_

d. If the probability of a female that did not graduate is .08, what would the probability that if 4 students were selected at least one of the next four would be a female that did not graduate?

7d. \_\_\_\_\_

8. Answer the following doubling and half-life time problems using the approximate rule (rule of 70).

- a. A radioactive substance has a decay rate of 5% per day. If you have 900 grams how much would you have in 18 days (Round to nearest whole unit)

a. \_\_\_\_\_

- b. The price of gas was \$2.85 per gallon in January of 2007. If it increases at the rate of 1% per month, what will it be in one year?

b. \_\_\_\_\_