**Lab for Section 12.4** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Use good notation and show appropriate work. State your solutions to problems in complete sentences.*

1. The probability of winning a certain game 2. What percent of 73 is 8?

is  If you played the game 210 times

how many times would you expect to win?

3. Assume you roll a die and note the number of dots that show. Suppose you win $2 if an even number shows and you lose $1 if you roll a one or a three and you lose $5 if you roll a five. Determine your expected value. Is the game “fair”? Explain.

4. You toss 4 coins. If all coins show the same (all heads or all tails), you win $6; otherwise you lose your $1. Calculate your expected value for this game.

5. A friend invites you to play a game in which you are to draw a card from a standard deck of 52 cards. If you draw a club you win $5, if you draw a spade you win $10, and otherwise you lose $8. Should you play the game?

6. A company believes it has a 40% chance of being successful in bidding on a contract which yields a profit of $30,000. If it cost $5,000 in consultant fees to prepare the bid, what is the expected gain or loss for the company if it decides to bid on the contract?

7. A gift shop in Medora has a barrel of eighty grab bags. Each grab bag contains a gem worth $1, $5, or $50. Only one of the bags contains a gem worth $50 and three bags contain a gem worth $5. The shop charges $2 to take a bag.

(a) What is the expected value of a grab bag?

(b) What is a fair price to pay?

8. Roulette in most casinos in the United States has 38 numbered positions: 0, 00, 1, 2, 3, …, 36.

For a ***Red/Black or Odd/Even or 1-18/19-36:*** The player covers eighteen numbers. The casino pays 1 to 1. Compute:

(a) the probability of a win (b) the probability of a loss

(c) the odds of winning. (d) the odds of losing.

(e) the expected value of a $1 bet. (f) You go to a casino and play 200 times with $5 bet

each time. ***On average***, how much would you expect

to win/lose?