Assignment 3: Quiz

1. (2 pts)
During the last hour, a telemarketer dialed 20 numbers and reached 4 busy signals, 3 answering machines, and 13 people. Use this information to determine the empirical probability that the next call will be answered in person.

2. (2 pts)
If you roll a die many times, what would you expect to be the relative frequency of rolling a number less than 6?
A) 2 out of 3 B) 1 out of 3 C) 1 out of 6 D) 1 out of 2 E) 5 out of 6

3. (2 pts)
A jar contains 5 yellow marbles, 16 green marbles, and 8 black marbles. If one marble is selected at random, what is the probability that it is not green?

4. (2 pts)
One card is selected at random from a standard 52-card deck of playing cards. Find the probability that the card selected is a red king.

5. (2 pts)
The odds against Thunderbolt winning the Sarasota Derby are 9: 2. Find the probability that Thunderbolt wins.

A) 9/20 B) 11/20 C) 9/11 D) 2/11 E) 2/9

6. (4 pts)
1000 tickets for prizes are sold for $2 each. Seven prizes will be awarded – one for $400, one for $200, and five for $50. Steven purchases one of the tickets.
a) Find the expected value
b) Find the fair price of the ticket.

7. (2 pts)
Two balls are to be selected without replacement from a bag containing one red, one blue, one green, one yellow, and one black ball. How many points are there in the sample space?

8. (3 pts)
A license plate is to consist of two letters followed by three digits. How many different license plates are possible if the first letter must be a vowel, and repetition of letters is not permitted, but repetition of digits is permitted?

9. (2 pts) A man has 8 pairs of pants, 5 shirts, and 3 ties. How many different outfits can he wear?

10. (9 pts)
A specific brand of bike comes in two frames, for males or females. Each frame comes in a choice of two colors, red and blue, and with a choice of three seats, soft, medium, and hard.
a) Use the counting principle to determine the number of different arrangements of bicycles that are possible.
b) Construct a tree diagram illustrating all the different arrangements of bicycles that are possible.
c) List the sample space.

11. (3 pts) The results of a survey for an airline are shown below

Traveler	Male	Female	Total
Business	57	92	149
Vacation	72	74	146
Total	129	166	295

Use the chart to find the probability that the traveler was

a) male
b) on vacation given the traveler was male
c) female given the traveler was on business

12. (2 pts) In how many ways can 7 instructors be assigned to seven sections of a course in mathematics?

13. (4 pts) At an annual flower show, 6 different entries are to be arranged in a row.
a) How many different arrangements of the entries are possible?
b) If the owners of the 1^{st}, 2^{nd}, and 3^{rd} place entries will be awarded prizes of $100, $50, and $25 respectively, how many ways can the prizes be awarded?

14. (2 pts) How many different ways are there for an admissions officer to select a group of 7 college candidates from a group of 19 applicants for an interview?