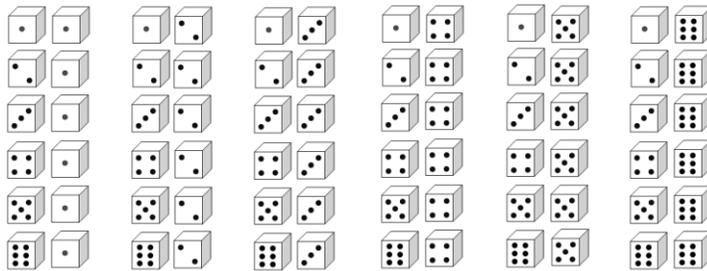


Show all work to receive full credit. Supply explanations where necessary.

1. (3 points) A spinner is constructed by dividing a circle into 5 colored regions of equal size (see below). Explain how you would use a random digit table to simulate spinning the spinner 10 times.



2. (3 points) A pair of dice are rolled. All possible outcomes are shown below.



(a) What are the odds in favor of rolling a sum of 7?

(b) What are the odds against rolling a sum of 7?

3. (2 points) Let A be the event that a randomly selected household has a pet cat. Suppose the odds against A are $8 : 3$. What is the probability of A ?

4. (3 points) Suppose five quarters, four dimes, five nickels, and eleven pennies are in a jar. One coin is selected at random. What is the expected amount of money drawn from the jar?

5. (3 points) A game consists of rolling a regular die with prizes awarded as follows:

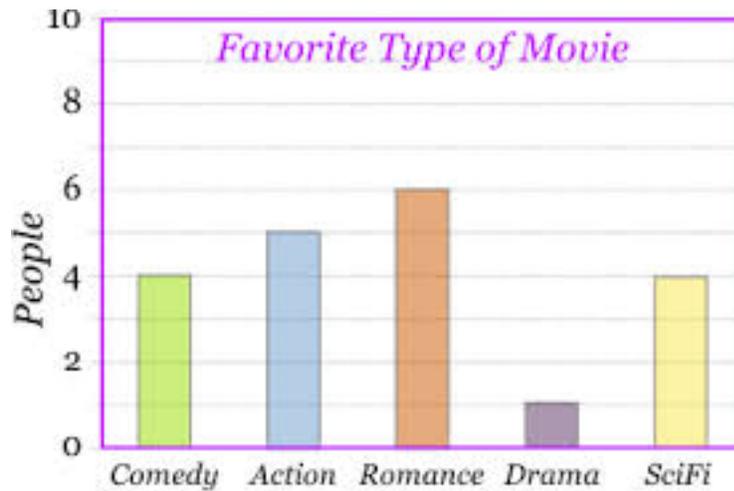
- Roll a 6 and win \$10
- Roll a 1 or 2 and win \$3
- Roll a 3, 4, or 5 and win \$1

If the game is to be fair, how much should it cost to play?

6. (2 points) Professor Granger has taught a calculus course every semester for many years. The following list gives the numbers of students enrolled each semester, in the order in which they occurred. Sketch the corresponding dot plot.

29	27	27	21	34	24	24
32	27	25	27	25	28	26
29	28	32	23	20	29	21

7. (3 points) Consider the bar graph shown below.



- (a) How many people are in the sample described by the graph?
- (b) For what percent of people were their favorite movies Drama or SciFi?
- (c) Describe two things about this graph that make it very clear that it is NOT a histogram.

8. (6 points) For each of the following situations, tell which type of graph would best display the data. Choose from *dot plot*, *bar graph*, *line graph*, *scatterplot*, *pie chart*, *histogram*, or *stem-and-leaf plot*. You may get partial credit if you offer brief explanations.
- (a) After collecting data from over 1000 people, Stephanie is constructing a graph that shows the seven most common causes for quitting a job.

 - (b) The author of a geography textbook wants to show a graph displaying the portions of the earth's land surface taken up by the seven continents.

 - (c) Health researchers weighed 500 fourth-grade children and summarized their data in a grouped frequency table . They want to make a graph illustrating their frequency distribution.

 - (d) A stock chart shows the value of a particular stock throughout the day. What type of graph is a stock chart?

 - (e) Jon rolled a six-sided die 25 times. He would like to make a graph showing the numbers that he rolled.

 - (f) At the end of the semester, a professor made a list containing his students' ages and their corresponding final exam scores. He formed ordered pairs and plotted the data.

9. (2 points) Organize the following data into a stem-and-leaf plot.

2.1 3.2 4.8 1.2 2.8 3.2 3.6 3.7 3.8 4.9
4.7 3.2 4.8 5.1 1.0 2.7 5.0 2.1 2.4 1.2

10. (2 points) In a recent study, a large number of heterosexual couples in committed relationships were asked whether the man or woman said "I love you" first. In this context, would the collected data be qualitative (categorical) or quantitative (numerical)? Explain why you think so.

11. (2 points) Suppose you constructed a pie chart (circle graph) from a given collection of data. How would the graph change if you doubled the amount associated with each category? Explain.

12. (2 points) Sketch a scatterplot showing a collection of data with a weak negative linear association. Also roughly sketch the trend line.

13. (3 points) In the following stem-and-leaf plot, $4|2$ means 42. Compute the mean, median, and mode(s).

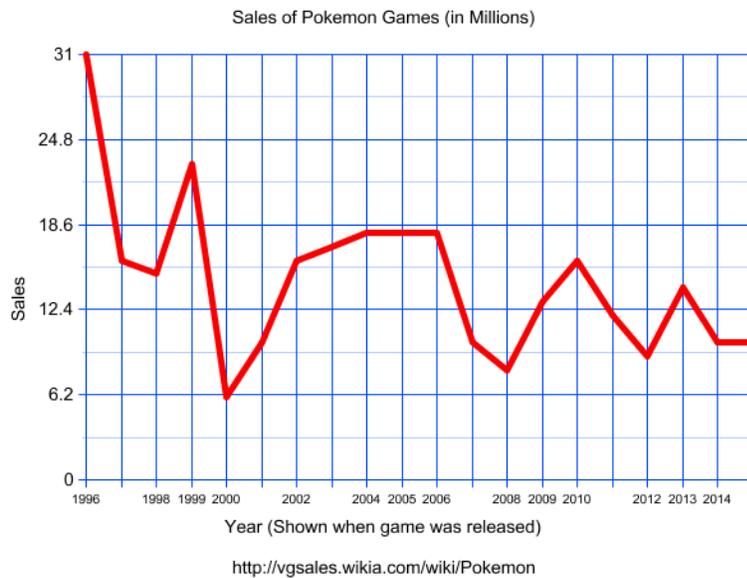
3		6	8						
4		0	2	7					
5		5	5	6	7	8	8		
6		7	7	7					
7		5							

14. (2 points) The mean price of a family-size bag of Doritos at four local stores is \$4.21. The mean price at two other stores is \$4.74. What is the mean price of the Doritos at all six of the stores?

15. (2 points) The following table gives the annual salaries of the 50 employees at a certain company. Without computing them, which would be the more appropriate measure of center, the mean or the median? Explain.

Salary (\$)	No. of employees
18,000	2
22,000	6
32,000	24
48,000	15
80,000	2
150,000	1

16. (3 points) Consider the graph shown below.



- (a) What is the name of this type of graph?
- (b) By how much did sales change from 1996 to 1997?
- (c) In what year were the least sales?

Deliberately blank.

17. (2 points) If 99 people had a mean income of \$13,500, how much is the mean income increased by the addition of a single income of \$220,000?

18. (5 points) Design (and carefully explain) a simulation that could be used to estimate the solution of the following problem.

A box of cereal contains one of six different toys. A child wants to collect two of each toy. About how many boxes must the child buy before she completes her collection (of two of each).

Perform ten trials of your simulation. Then use your data to estimate the solution.