Statistics   Name: _____
Chapter 5 Review   Block: _____

Determine whether the distribution represents a probability distribution. If it does not, state why.

1.
x	5	10	15
p(x)	1.2	0.3	0.5

2.
x	1	2	3	4	5
p(x)	3/10	1/10	1/10	2/10	3/10

3.
x	1	2	3
p(x)	-0.3	0.6	0.7

State whether the variable is discrete or continuous.

4. The number of cheeseburgers a fast food restaurant serves each day.

5. Weights of cats in a pet shelter.

6. Capacity (in gallons) of six reservoirs in Jefferson County.

Construct a probability distribution for the data and draw a graph for the distribution.

7. Construct a probability distribution for the number of boys when you have three children and draw a graph for the distribution.

8. Construct a probability distribution and draw a graph for picking a bill from your pocket, if you have 3 $1 bills, 1 $5 bill, 6 $10 bills, and 2 $20 bills.

9. One thousand tickets are sold at $1 each for a sound system valued at $400. What is the expected value of the gain if a person purchases one ticket?

10. If a player rolls two dice and gets a sum of 2 or 12, she wins $20. If the person gets a 7, she wins $5. The cost to play the game is $3. Find the expected value of the game. Is the game fair? Why or why not?

11. You are getting car insurance that costs $1200 a year. The probability that the insurance company has to pay out a claim for $10,000 is 15%. What is the expected value of the insurance company? Explain what this answer means for the insurance company. Is the insurance company charging enough for the insurance?

12. A raffle offers a first prize of $1000, 2 second prizes of $300 and 20 third prizes of $10 each. If 8000 tickets are sold at $1 each, find the expected winnings for a person buying 1 ticket.

13. A concerned parents group determined the number of commercials shown in each of five children's programs over a period of time. The numbers of commercials were 5, 6, 7, 8, and 9 with each probability being 0.2, 0.25, 0.38, 0.10, and 0.07 respectively.
a.) Is this a binomial distribution? Explain why or why not?

b.) Find the mean and standard deviation.

c.) Find the probability that 5 or 6 commercials were being shown.

14.) Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial.
n=11, p=0.41, x=5

15. A survey of students were asked how many days of school they missed in the last month. Out of 40 surveyed – 19 were absent 0 days, 8 were absent 1 day, 7 were absent 2 days, 4 were absent 3 days and 2 were absent 4 days. Calculate the mean and standard deviation for the number of days absent and determine the probability that a student was absent fewer than 2 days.

16. If 30% of all commuters ride the train to work, find the probability that if 10 workers are selected, that exactly 5 will ride the train. Find the mean and standard deviation. Would it be unusual (outside 2 standard deviations of the mean) to select 10 workers and find that greater than 8 ride the train to work?

17. A school had a cookie sale and the number of boxes bought was recorded. Out of 55 students 32 bought 1 box, 14 bought 2 boxes, 7 bought 3 boxes, and 2 bought 4 boxes. Calculate the mean and standard deviation for the number of boxes bought and determine the probability that a student bought 2 or more boxes.

18. If 90% of all people between the ages of 30 and 50 drive a car, find the probability that at least 17 people drive a car for a sample of 20 people in that age group.

19. A report stated that 27% of American households burn wood. If a random sample of 500 American households is selected, find the mean and standard deviation of the number of households that burn wood. Find the probability that at most 130 burn wood.