Pre-Algebra Homework #9

1) Could the probability of any given event occurring be any of the following numbers: $7, -3, 0.44, \frac{7}{3}, 1, 1.58, -1, \frac{4}{5}, 26\%, 0, 225\%$?

2) If you invest $5,200 in a bank account at a 4.5% interest rate and you end up closing the account years later and the bank gives you $6,604 back, how many years did you keep the money in the bank?

3) What is the theoretical probability of rolling a 1 using a fair, six-sided die? What is the theoretical frequency that can be expected for rolling a 6 using a fair eight-sided die?

4) You go to fair where you buy a beeswax candle with a tag that reads $15 but end up paying $16.20 at the register, what is the sales tax rate?

5) Luke rolls a fair, six-sided die five times and gets the following results on each roll: 2, 1, 6, 3, and 2. Based on Luke's rolls, what is the experimental probability of rolling a 6?

6) If you take a randomly shuffled, standard deck of cards, what is the probability that the top card will be either an ace or a heart?

7) If you take a randomly shuffled, standard deck of cards, what is the probability that the first dealt card is a 5 and the second card dealt is also a 5?

8) A six-die is rolled. Find the probability of the following events:
   a. Rolling a 4 or 5
   b. Rolling a 3 or an even number
   c. Rolling a 1 or a multiple of 2
   d. Rolling a 6 or a number less than 3

9) If you roll both a fair, six-sided and an eight-sided die, what is the probability of rolling a sum of 3 or sum of 4?

10) If you roll both a fair eight-sided and ten-sided die, what is the probability that you will roll either a 5 or 6 on the eight-sided die and roll either a 1, 2, 3, or 4 on the ten-sided die?

Pre-Algebra Homework #9

11) A six-sided die is rolled and a five-sectioned spinner, containing the letters A, B, C, D, and E, is spun. Find the probability of the following events:
    a. Rolling a 5 and landing on E
    b. Rolling a 2 and landing on a vowel
    c. Rolling a 3 and landing on a consonant
    d. Rolling a factor of 6 and landing on D

12) Abigail has two pairs of black pants, three pairs of blue pants, and one pair of tan pants. She also has four white and two red shirts. If Abigail chooses a pair pants and a shirt at random, what is the probability that she will choose a pair of black pants and a white shirt?

13) A jar contains 12 marbles. Four are red, three are white, and five are blue. A marble is randomly selected, its color recorded, and then the marble is returned to the jar. A second marble is randomly selected. Find the probability that both marbles selected are blue.

14) A spinner as five sections labeled 1-5. A second spinner contains the following sections: two red, three purple, and five green. You spin each spinner at the same time. Find the probability of the following:
    a. Landing on a 5 and a green section
    b. Landing on a prime number and a purple section
    c. Landing on an odd number and a red section
    d. Landing on an even number and a green section

15) If you roll both a fair, ten-sided and a twelve-sided die, what is the probability of rolling a sum of 6 or sum of 7?

16) A coin is tossed twice, and a letter is randomly picked from the word mathematics. Find each probability.
    a. Two heads and a T
    b. Heads, tails, and not C
    c. Tails, not tails, and a consonant
    d. Two tails and a vowel

Pre-Algebra Homework #9

17) You have been hired to design a compound probability experiment where the final theoretical probability of the compound event is exactly $\frac{7}{18}$. Create at least one, detailed, compound probability experiment that meets these requirements.

18) A day of the week is a randomly selected. Find each probability.

   a. Monday or Tuesday

   b. Weekday or Saturday

   c. A day beginning with T or Friday

   d. Wednesday or a day with 6 letters

19) If you roll a fair six-sided, eight-sided and ten-sided die, what is the probability that you will roll either a 2 or 4 on the six-sided die, roll either a 2, 3, 4, or 5 on the eight-sided die and roll a 7, 9, or 10 on the ten-sided die?

20) You have been hired to design a compound probability experiment where the final theoretical probability of the compound event is exactly $\frac{1}{24}$. Create at least one, detailed, compound probability experiment that meets these requirements.