

Probability Review

1. Mrs. Ferguson is in charge of the costume room for the drama department. She has pulled out all the clothes that will work for the lead character. They have 5 different types of pants, 7 different types of shirts, 4 different types of jackets and 2 different types of shoes. How many different outfits can she put together for the lead character?

2. Find the value of each expression.

A. $4!$

B. ${}_3P_2$

C. ${}_8C_2$

3. a. Kansas license plates are required to have a two-digit number, followed by 1 letter, followed by 3 more one-digit numbers. (Like the one shown) Repeats of letters and numbers are allowed. How many different license plates are possible?

7 4 H - 0 7 2

b. If they process 175,000 new plates a year, how many years until they will not have any NEW plates to give out?

For #4-7:

- tell if each is a combination or permutation
- write the correct ${}_nP_r$ or ${}_nC_r$ notation
- show all work/strategy to solve the problem

4. How many ways can you group 8 different pairs of shoes, 4 at a time on a wall display in Foot Locker?

5. Mr. Brown has a group of twelve players from which to choose a five player starting line up. (FYI there are five different positions on the court for basketball.) How many different lineups can be formed from this group of players?

6. Four students of different ages go to the front of the room standing side by side. How many different ways can they line up?

7. Family Fare sells 12 different kinds of candy. In how many different ways can the manager arrange any 4 of these in groups for the register display?

8. Use the spinner at the right to answer the following questions.

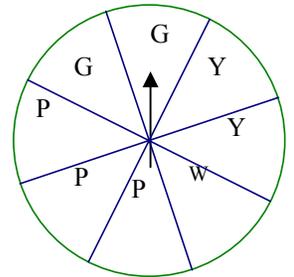
Reduce fractions for full credit! (P=purple, W=white, G=green, Y=yellow)

A. P(Yellow) _____ 2pts

B. P(Green or White) _____ 2pts

C. P(black) _____ 2pts

D. P(Purple) _____ 2pts



9. The probability of getting the construction bid is 25%, what are the odds in favor of the company getting the bid?

10. What are the odds against getting the bid?

You roll a standard die.

11. What are the Odds in Favor of rolling a odd number?

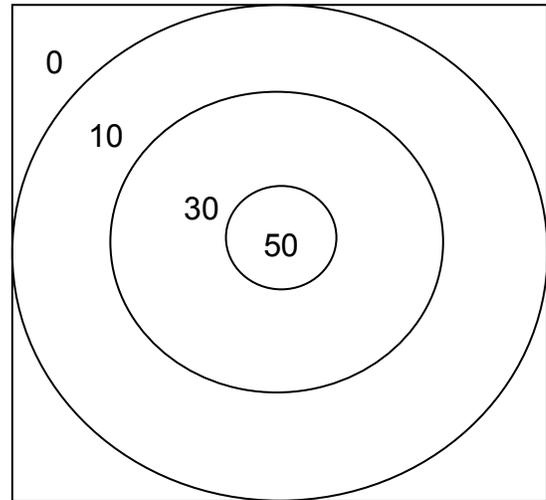
12. What are the Odds Against rolling a 3?

13. A dart board is shown below. The radius of the inner circle is 2cm; the radius of the middle circle is 6 cm; the radius of the outer circle is 9 cm. You throw one dart. Find the following probabilities. Describe your strategy clearly!!

P(0 points)

P(30 points exactly)

P(10 points)



Find the following probabilities and identify the events as mutually exclusive, complementary, or neither.

Drawing one card from a deck of cards

14. $P(\text{Jack or a club}) =$

$P(\text{club or heart}) =$

Mutually Exclusive

Mutually Exclusive

Complementary

Complementary

Neither

Neither

You roll a single dice.

15. $P(\text{Even or a five}) =$

$P(\text{a prime or not a prime}) =$

Mutually Exclusive

Mutually Exclusive

Complementary

Complementary

Neither

Neither

16 A bag contains 5 purple, 5 amber, 4 green, and 8 orange marbles. Find the following probabilities and determine if the events are independent or dependent.

Find the probability of picking 3 orange marbles in a row, if each marble is returned to the bag before the next marble is picked.

Probability: _____ Independent or Dependent _____

Find the probability of picking a purple, then a green, and then an amber, if each marble is NOT returned to the bag before the next marble is picked.

Probability: _____ Independent or Dependent _____

Find the probability of picking a green, then a purple and then another purple, when each marble is NOT returned to the bag.

Probability: _____ Independent or Dependent _____

Find the probability of picking a green, then a purple and then another purple, when each marble is returned to the bag.

Probability: _____ Independent or Dependent _____

17. Your friend asks you to play a game. You pay your friend \$3 to play. You pick a card from a standard deck of cards. The payoff is as follows:

Ace	you win \$8
2-7	you win \$7
8-Jack	you win \$2
Q or K	you lose

a. Find the expected value of this game. Show all work!

b. Would you choose to play this game or not? Why or why not? Be sure to explain what your “expected value” answer means.