

Name: _____
Period: _____

Classwork

Date: _____
Pre-Calculus *16.1 Introduction to Probability*

DIRECTIONS: SHOW ALL WORK ON A SEPARATE SHEET OF PAPER.

- Three children are born into a family. On any birth the child could be a son or a daughter. Using *s* to represent a son and *d* to represent a daughter, and write out all of the possibilities.
- A committee of 2 is selected from a group consisting of 5 people: Amanda, Matt, Jenn, Sean, and Brenda.
 - Find all the possible outcomes.
 - What is the probability that both members on the committee are males?
 - What is the probability that exactly one member is male?
- Two letters are chosen at random from the word WINTER.
 - Find all the possible outcomes.
 - What is the probability that both letters are consonants?
 - What is the probability that both letters are vowels?
- A die is thrown and a coin is tossed.
 - Find all the possible outcomes.
 - What is the probability that the number on the die is odd?
- Out of 24 people who placed ads to sell household belongings in a neighborhood paper one week, 18 made a sale within a week. If Ms. Rudowsky places an ad to sell a table in the paper the following week, what are the odds that she will sell within a week?
- If the probability that it will snow on a given day is $\frac{1}{3}$:
 - What is the probability that it will not snow?
 - How do the two probabilities compare?
- You are the first person to draw one of 24 slips of paper, numbered consecutively 1 to 24.
 - What is the probability of drawing a number exactly divisible by 3?
 - What is the probability of drawing a number exactly divisible by 5?
- A bag contains 2 white marbles, 4 blue marbles, and 6 red marbles. A marble is drawn at random from the bag. What is the probability that:
 - It is white?
 - It is not blue?
 - It is not white?
 - It is red?
 - It is blue?
 - It is black?
- One card is picked from a typical deck of 52 playing cards. What is the probability that the card is:
 - A black card?
 - A three?
 - A king or a queen?
 - A black or not a face card?
- The probability that there will be snow this Wednesday is $\frac{4}{5}$.
 - What is the probability that there will NOT be snow this Wednesday?
 - What are the *odds* in favor of snow this Wednesday? (This is different than the probability, think about it!)

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 Pre-Calculus 16.1 Introduction to Probability

DIRECTIONS: SHOW ALL WORK ON A SEPARATE SHEET OF PAPER.

- Three children are born into a family. On any birth the child could be a son or a daughter. Using s to represent a son and d to represent a daughter, and write out all of the possibilities.
 $\{s,s,s\} \{s,s,d\} \{s,d,s\} \{d,s,s\} \{d,d,s\} \{d,s,d\} \{s,d,d\} \{d,d,d\}$
- A committee of 2 is selected from a group consisting of 5 people: Amanda, Matt, Jenn, Sean, and Brenda.
 - Find all the possible outcomes. $\{A,M\} \{A,J\} \{A,S\} \{A,B\} \{M,J\} \{M,S\} \{M,B\} \{J,S\} \{J,B\} \{S,B\}$
 - What is the probability that both members on the committee are males? $1/10$
 - What is the probability that exactly one member is male? $6/10 = 3/5$
- Two letters are chosen at random from the word WINTER.
 - Find all the possible outcomes. $\{W,I\} \{W,N\} \{W,T\} \{W,E\} \{W,R\} \{I,N\} \{I,T\} \{I,E\} \{I,R\} \{N,T\} \{N,E\} \{N,R\} \{T,E\} \{T,R\} \{E,R\}$
 - What is the probability that both letters are consonants? $5/15 = 1/3$
 - What is the probability that both letters are vowels? $1/15$
- A die is thrown and a coin is tossed.
 - Find all the possible outcomes. $\{H,1\} \{H,2\} \{H,3\} \{H,4\} \{H,5\} \{H,6\} \{T,1\} \{T,2\} \{T,3\} \{T,4\} \{T,5\} \{T,6\}$
 - What is the probability that the number on the die is odd? $6/12 = 1/2$
- Out of 24 people who placed ads to sell household belongings in a neighborhood paper one week, 18 made a sale within a week. If Ms. Rudowsky places an ad to sell a table in the paper the following week, what are the odds that she will sell within a week?
 $18:6$ or $3:1$ \rightarrow Ratio will to won't
- If the probability that it will snow on a given day is $1/3$:
 - What is the probability that it will not snow? $2/3$
 - How do the two probabilities compare? $1/3 + 2/3 = 1$
- You are the first person to draw one of 24 slips of paper, numbered consecutively 1 to 24.
 - What is the probability of drawing a number exactly divisible by 3? $8/24 = 1/3$
 - What is the probability of drawing a number exactly divisible by 5? $4/24 = 1/6$
- A bag contains 2 white marbles, 4 blue marbles, and 6 red marbles. A marble is drawn at random from the bag. What is the probability that:
 - It is white? $2/12 = 1/6$
 - It is not blue? $1 - 4/12 = 8/12 = 2/3$
 - It is not white? $9/12 = 3/4$
 - It is red? $6/12 = 1/2$
 - It is blue? $4/12 = 1/3$
 - It is black? 0
- One card is picked from a typical deck of 52 playing cards. What is the probability that the card is:
 - A black card? $1/2$
 - A three? $4/52 = 1/13$
 - A king or a queen? $8/52 = 1/6.5$
 - A black or not a face card? $26/52 + 40/52 - 10/52 = 46/52$
 OR $1 - 6/52 = 46/52$
- The probability that there will be snow this Wednesday is $4/5$.
 - What is the probability that there will NOT be snow this Wednesday? $1/5$
 - What are the odds in favor of snow this Wednesday? (This is different than the probability, think about it!)
 $4:1$