

## MATH 7

Write your  
questions here!



COIN: HEADS, TAILS



Suppose having a baby boy is equally likely as having a baby girl. If Franky has three children, how likely is it that all of the children are the same gender?

If we found 200 parents who all had 3 children, about how many would have children who are all the same gender?

Nia makes 5 out of every 6 free throws in basketball. How likely is it that Nia misses two shots at the end of a game?



NUMBER CUBE:

6 DIFFERENT OUTCOMES

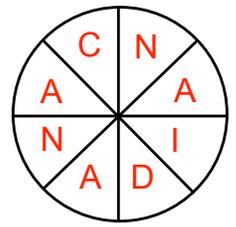
If Nia has to make the last two shots 20 times, about how many games will she win?

## Simulations

## Canadian Spinners



Suppose Paul spins the spinner 400 times and gets 142 A's.  
Is this reasonable?



### More Tree Diagrams:

Sully loves a good breakfast! He always has either a bagel, or a muffin. To drink, he chooses between milk, juice and coffee. Estimate about how many times Sully would have a bagel with milk if he selects randomly for 365 days.

### SUMMARY:

Now,  
summarize  
your notes  
here!



**Janice has a teacher that only collects the homework 50% of the time. Janice gets 3 homework assignments every week. Janice wonders how many homework assignments his teacher will collect this week?**

1. List all possible outcomes like “collect, no collect, collect”. You can use a tree diagram to represent them!
2. What is the theoretical probability that Janice’s teacher will collect all 3 assignments?
3. Find  $P(\text{collect, collect, no collect})$ .

**Janice decides to simulate her teacher’s homework collection by tossing a coin three times. Heads means her teacher collects the homework, tails means her teacher does not collect the homework. She records her result below.**

**Simulation 1 = H H T**

**Simulation 2 = T H T**

**Simulation 3 = T T T**

4. According to simulation #1, how many times would Janice’s teacher collect her homework?
5. According to simulation #2, how many times would Janice’s teacher collect her homework?

**Janice runs her simulation 500 times. 64 times Janice’s teacher would collect the homework all three days.**

6. Use this simulation to predict how many weeks his teacher would collect the homework all three days in 28 weeks.

7. Set up a simulation using a six-sided number cube for Janice’s teacher homework collection. Explain in detail how your simulation would work!

**Probability**

8. 45% of people that go to the movies buy popcorn. If there are 160 people at the new Star Wars movie, how many will have popcorn?
9. The Bengals win 9 out of 16 games played. How many games will they win out of 80 games?
10. You sit at the food court and count red headed people. You see 2 red heads out of 50 people. If there are 400 people at the mall, how many would be red headed?

**Josh Allen thinks that you are equally likely to have brown, blue, green or hazel colored eyes. He creates a simulation using a deck of cards. Each suite represents an eye color. Bob draws a card and then replaces it. Use his results to answer the following.**

Hearts (Brown Eyes)	
Diamonds (Blue Eyes)	
Spades (Green Eyes)	
Clubs (Hazel Eyes)	

11. Find  $P(\text{Blue Eyes})$ .
12. Out of 350 people, how many would you expect to have blue eyes based on your simulation?
13. Find  $P(\text{Green Eyes})$ .
14. Out of 350 people, how many would you expect to have green eyes based on your simulation?
15. Turns out, only 17% of people have blue eyes. Out of 350 people, how many would you expect to have blue eyes based on the theoretical probability?

1. 10% of people are left handed. There 240 people at school today. How many are left handed?
2. Two out of every 6 students bring Mr. Brust a gift for teacher appreciation week. *Explain* how to use a number cube (dice) to simulate the number of students out of 80 that bring him a gift for teacher appreciation week.

**Bob goes to Las Vegas. He watches a slot machine all day and notices that the slot machine only hits Jackpot 4 times when played 315 times. Use this experimental probability to answer the following.**

3. Bob plays the slots 40 times. How many jackpots should he hit?
4. The casino has hundreds of people playing. A slot room on a normal day could have 45,000 plays. How many jackpots would the room have the entire day?
5. Big casinos have multiple slot machine rooms. A big casino may have 820,000 plays. How many jackpots would that casino have?

**One Casino claims their slots hit Jackpot 2% of the time. Use this theoretical probability to answer...**

6. Bob plays the slots 40 times. How many jackpots should he hit?
  
  
  
  
  
  
  
  
  
  
7. The casino has hundreds of people playing. A slot room on a normal day could have 45,000 plays. How many Jackpots would the room have?
  
  
  
  
  
  
  
  
  
  
8. Big casinos have multiple slot machine rooms. A big casino may have 820,000 plays. How many Jackpots would the casino have?

**EXIT TICKET –**

**Bob wants to create a simulation using a deck of cards. Since a deck of cards has 52 cards, he removes two cards so that there are only 50 cards. Then, because  $\frac{1}{50}$  cards = 2%, he says that the Ace of Hearts will represent “Jackpot”.**

**Bob runs his simulation 500 times and gets 12 Ace of Hearts. Use this simulation to answer the following.**

9. Bob plays the slots 40 times. How many jackpots should he hit?
  
  
  
  
  
  
  
  
  
  
10. The casino has hundreds of people playing. A slot room on a normal could have 45,000 plays. How many Jackpots would the room have?