

1. Determine if the events are INDEPENDENT or DEPENDENT.

- a. You grab a piece of chocolate from the jar, eat it, then grab another. Dependent
- b. You draw a card from a deck, replace it, and draw a second. Independent
- c. You flip a coin and spin a spinner. Independent
- d. You take a pencil from your teacher, throw it away, and then take another one. Dependent

2. A spinner is divided into eight sections labeled A - H. You spin the spinner 49 times. The results are as follows:

Number	A	B	C	D	E	F	G	H
Number of Times Spinner Landed on Number	3	2	7	8	5	7	10	7

Find $P(H)$. Write the probability as a fraction in simplest form and a percent.

Fraction: $\frac{7}{49} = \frac{1}{7}$

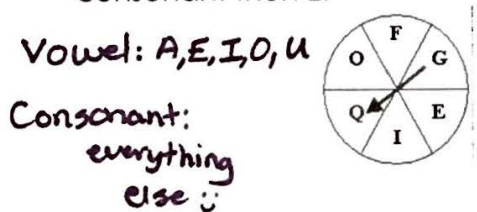
Percent: $0.14 \times 100 = 14\%$

For #3 - 5, write your answers as fractions in simplest form.

3. You select a marble from a bag containing 29 marbles. The bag contains: 5 blue marbles, 6 green marbles, 7 red marbles, 8 white marbles, and 3 yellow marbles. Find the probability of selecting RED or BLUE.

$P(\text{red or blue}) = \frac{12}{29}$
 5 blue
 7 red = 12

4. Suppose you spin the spinner below twice. Find the probability of spinning a consonant then E.



$P(\text{consonant, then E}) = \frac{3}{6} \cdot \frac{1}{6} = \frac{3}{36} = \frac{1}{12}$
 3 consonants
 1 "E" = 4

5. You roll a standard dice. Find the probability of rolling a number less than 3.

$P(\text{number less than 3}) = \frac{2}{6} = \frac{1}{3}$
 ① ②, 3, 4, 5, 6

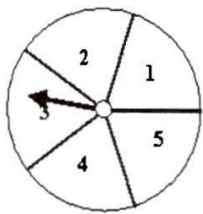
6. Which of the following numbers could not be the probability of an event? Explain.

- $\frac{1}{4}$ 0 35.2% 1 $-\frac{1}{2}$

Explanation: $-\frac{1}{2}$ is negative - Probability is from 0 to 1

For #7 & 8, use the spinner to find the probability. All sections are equal.

7. What is the probability of the spinner landing on an even number?



$$P(\text{even}) = \frac{2}{5}$$

8. You spin the spinner twice. What is the probability you will land on a 2 or 3, then an odd number?

$$P(2 \text{ or } 3) = \frac{2}{5} \quad P(\text{odd}) = \frac{3}{5} \quad P(2 \text{ or } 3) \cdot P(\text{odd}) = \frac{2}{5} \cdot \frac{3}{5} = \frac{6}{25}$$

You spin a spinner 50 times and record your results in the table.

Spinner outcome	Number of occurrences
Red	12
Green	7
Orange	9
Blue	12
Black	10

9. Using the results above, what is the **experimental probability** the spinner will land on the color red? Write your answer as a percent.

$$\frac{12}{50} = 0.24 \times 100 = 24\%$$

$$P(\text{red}) = 24\%$$

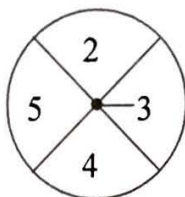
10. Assuming all sections are listed above and of equal size, what is the **theoretical probability** it will land on red? Write your answer as a percent.

5 colors total
1 color is red

$$\frac{1 \text{ red}}{5 \text{ total}} = 0.2 \times 100 = 20\%$$

$$P(\text{red}) = 20\%$$

11. Greg spins the spinner twice. All the sections of the spinner are of equal size.



What is the probability that it will land on 5, then a number greater than 5?

$$P(5) = \frac{1}{4}$$

$$P(\text{greater than } 5) = \frac{0}{4}$$

$$P(5) \cdot P(\text{greater than } 5) = \frac{1}{4} \cdot \frac{0}{4} = \frac{0}{16} = 0$$

Use the information below to answer questions 12 and 13.

There are 20 marbles in a bag. There are 4 blue marbles, 6 green marbles, 2 red marbles, and the others are yellow.

12. What is the probability of drawing a blue marble, REPLACING IT (return it to the bag before drawing again), and then drawing a green or blue marble?

$$P(\text{blue}) = \frac{4}{20}$$

$$P(\text{green or blue}) = \frac{6+4}{20} = \frac{10}{20}$$

$$P(\text{blue}) \cdot P(\text{green or blue}) = \frac{4}{20} \cdot \frac{10}{20} = \frac{40}{400} = \frac{4}{40} = \frac{1}{10}$$

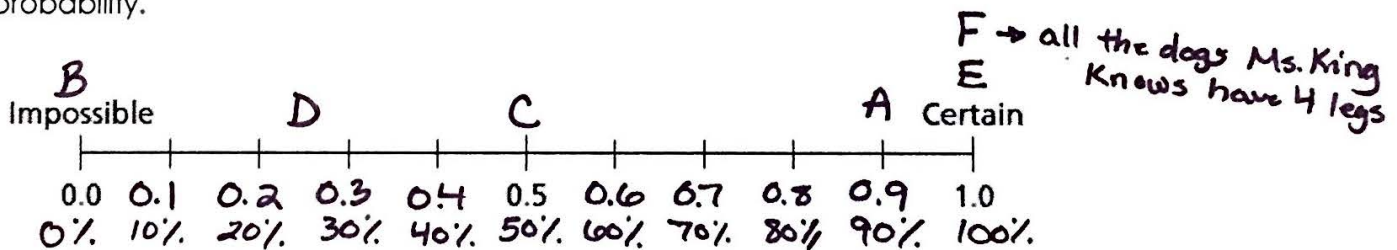
13. What is the probability of drawing a green marble, NOT REPLACING it, and then drawing a red marble?

$$P(\text{green}) = \frac{6}{20}$$

$$P(\text{red}) = \frac{2}{19}$$

$$P(\text{green}) \cdot P(\text{red}) = \frac{6}{20} \cdot \frac{2}{19} = \frac{12}{380} = \frac{6}{190} = \frac{3}{95}$$

14. Place the letter of each event (a-f) on the scale at the spot that best describes its probability.



- a) You have a 90% chance of losing the game
- b) You will have two birthdays this year
- c) The probability a child will be a girl.
- d) There is a .25 chance of rain
- e) If today is Friday, tomorrow is Saturday.
- f) A dog has four legs.

↳ depends :

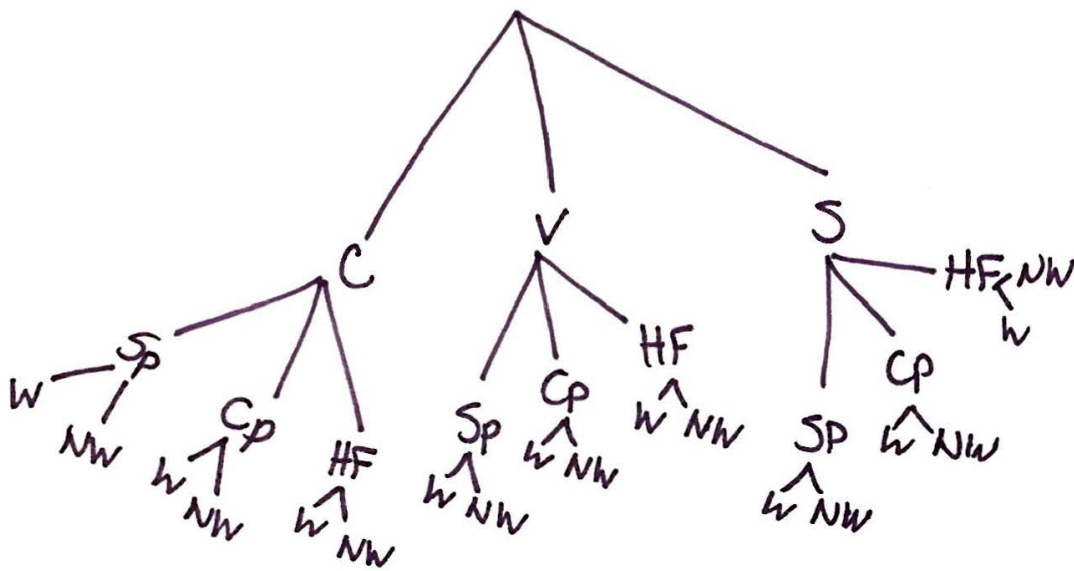
15. Krysta is taking Spanish and PE. There are 5 Spanish teachers and 6 PE teachers. How many possible outcomes are there for the two teachers Krysta will have? Use the FCP (Fundamental Counting Principle) to find the number of possible outcomes.

$$\text{Spanish} \quad \text{PE}$$

$$5 \cdot 6 = 30$$

30 possible outcomes

16. You order an ice cream sundae. You can choose chocolate, vanilla or strawberry ice cream. For toppings you may choose sprinkles, cookie pieces, or hot fudge. You can also choose whipped cream or no whipped cream. Draw a **tree diagram** to show the possible outcomes.



C = Chocolate
 V = Vanilla
 S = Strawberry
 Sp = Sprinkles
 Cp = Cookie Pieces
 HF = Hot Fudge
 W = Whipped Cream
 NW = No whipped cream

How many total possible outcomes are there?

Ice Cream \cdot Toppings \cdot Whip = 18

3 \cdot 3 \cdot 2 = 18

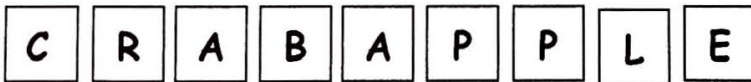
18 outcomes

What is the probability you will choose a chocolate ice cream, with sprinkles and whipped cream?

$\frac{1}{18}$

$\frac{1}{18}$

17. The cards below have been placed in a box. Once a card is drawn, it is **NOT** replaced.



What is the probability of getting:

an "E" or an "R" $\frac{2}{9}$

add possibilities
 this is ONE event

two "A"s $\frac{1}{9} \cdot \frac{1}{8} = \frac{1}{72}$

Multiply
 This is TWO events

a "W" and an "E" $\frac{0}{9} \cdot \frac{1}{9} = \frac{0}{81} = 0$

multiply
 This is Two events

an "C", "P", and an "L" $\frac{1}{9} \cdot \frac{2}{8} \cdot \frac{1}{7} = \frac{2}{504} = \frac{1}{252}$

multiply
 This is Two events