

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.

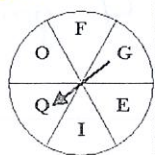
Fraction:  $\frac{7}{49} = \frac{1}{7}$       Percent: 14.3%

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.

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

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



$P(\text{consonant, then E}) = \frac{1}{12}$   
 $\frac{3}{6} \times \frac{1}{6} = \frac{3}{36}$

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

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

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

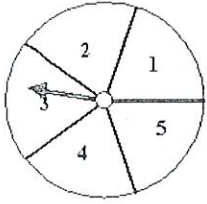
- $\frac{1}{4}$       0      35.2%      1

$-\frac{1}{2}$

smh wow  
 zero and one

Explanation: Probability is measured between zero and one.

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?

$$\frac{2}{5} \quad 0.4$$

$$40\%$$

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

$$\frac{2}{5} \times \frac{3}{5} = \frac{6}{25}$$

$$24\% \quad 0.24$$

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

→ what DOES happen

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

$$\frac{12}{50}$$

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

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.

$$\frac{1}{5}$$

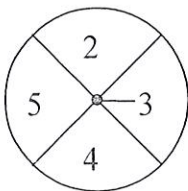
$$P(\text{red}) = 20\%$$

→ what SHOULD happen

11. How do the **theoretical** and **experimental** probabilities differ?

The experimental is greater by 4 percent

12. 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?

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

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

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

Use the information below to answer questions 13 and 14.

There are 20 marbles in a bag. There are 4 blue marbles, 6 green marbles, 2 red marbles, and 8 yellow marbles.

13. 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?

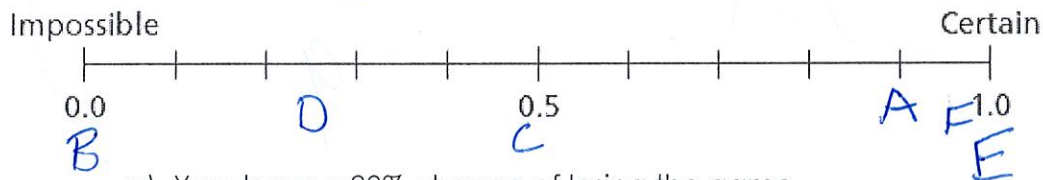
$$\frac{4}{20} \times \frac{10}{20} = \frac{40}{400} \quad \left(\frac{1}{10}\right) \quad \begin{array}{l} 0.1 \\ 10\% \end{array}$$

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

$$\frac{6}{20} \times \frac{5}{19} = \frac{30}{380} = \left(\frac{3}{38}\right) \quad \begin{array}{l} 0.08 \\ 8\% \end{array}$$

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

(Roughly)



- 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.

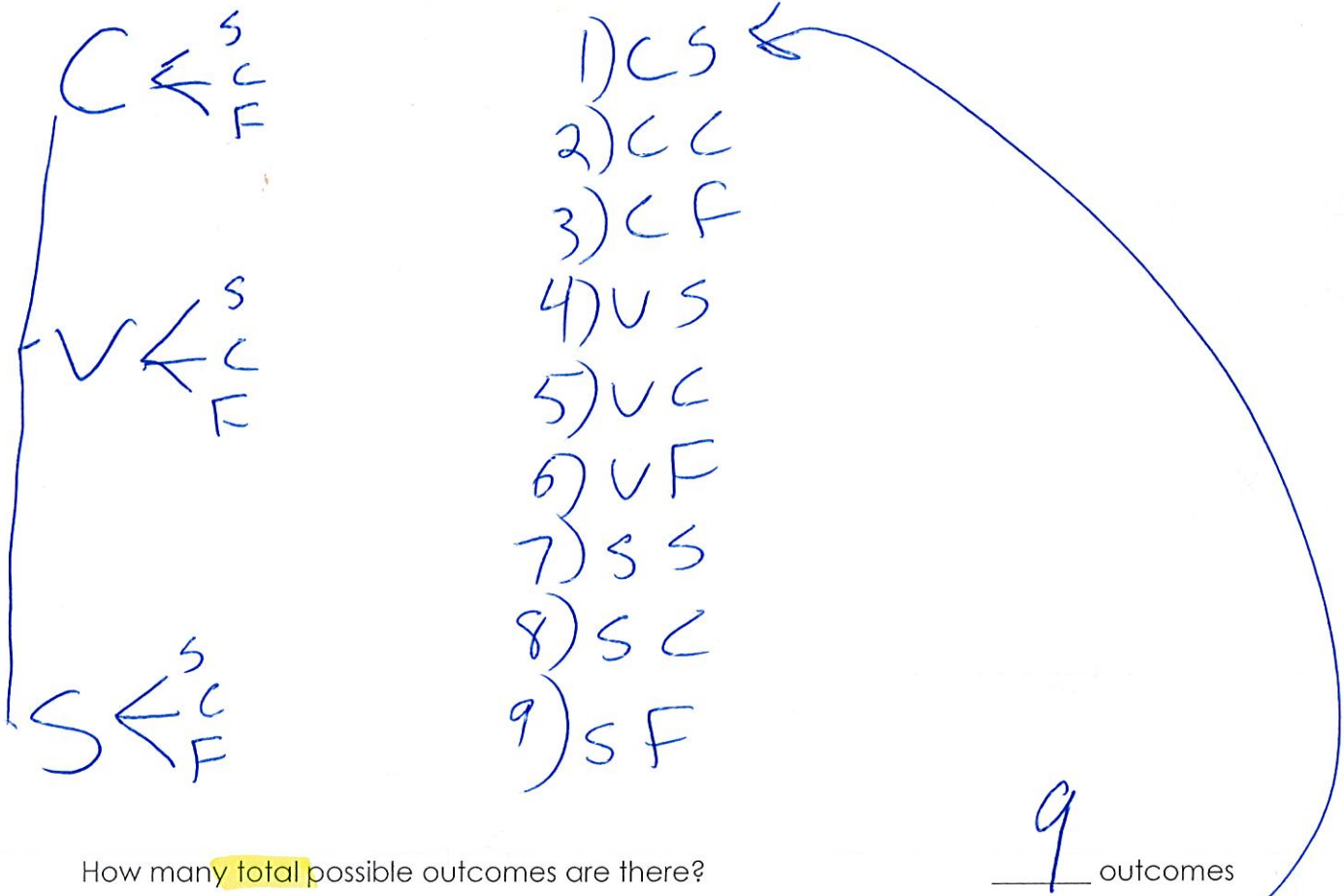
16. Krysta is taking Spanish and PE. There are 5 Spanish teachers and 6 PE teachers. How many possible outcomes are there for the two teachers Krysta will have? Use the FCP (Fundamental Counting Principle) to find the number of possible outcomes.

$$5 \times 6$$

30 possible outcomes



17. 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. Draw a **tree diagram** to show the possible outcomes.



What is the probability you will choose a **chocolate ice cream with sprinkles**?  $\frac{1}{9}$

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



What is the probability:

P(E or R)  $\frac{2}{9}$

P(W, then an E)  $\frac{0}{9} \times \frac{1}{9} = 0$

★ P(A, then A)  $\frac{2}{9} \times \frac{1}{8} = \frac{2}{72}$   
 $\frac{1}{36}$

P(C, then P, then L)  $\frac{1}{9} \times \frac{2}{8} \times \frac{1}{7} = \frac{2}{504}$   
 $\frac{1}{252}$