

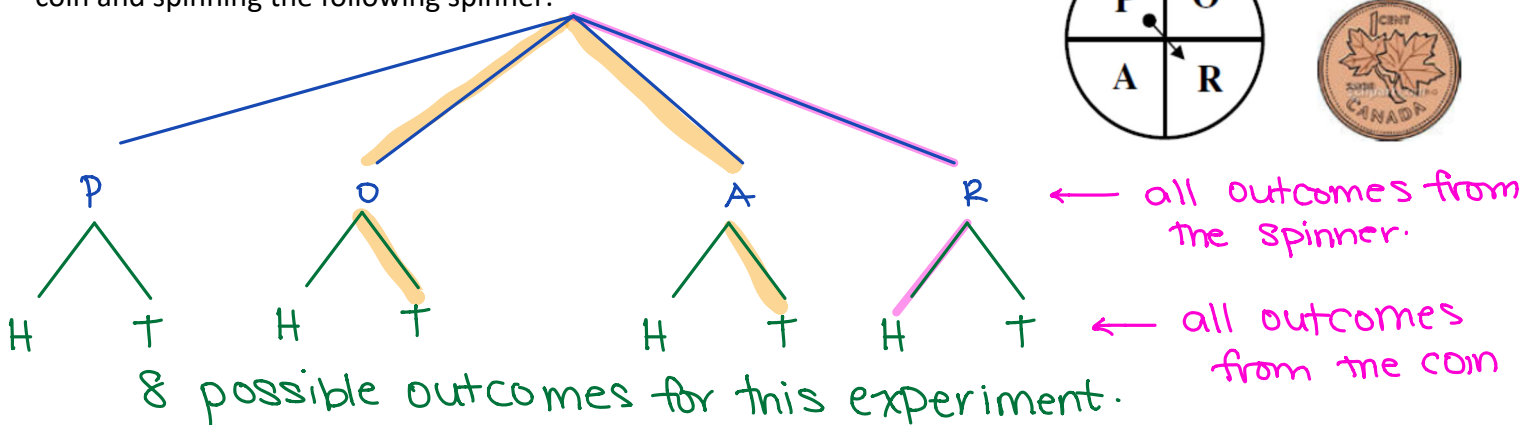
Name: \_\_\_\_\_

Date: \_\_\_\_\_

<b>Learning Goal 9.1</b>	I can calculate probabilities.
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**Independent Events** are when the result of one event has no impact on the result of second event ( has no impact on the third and so on ) " fourth

**Example** Draw a tree diagram to determine the sample space for flipping a coin and spinning the following spinner.



a. What is the probability of the coin landing on heads and spinning R?

$$P(H, R) = \frac{1}{8}$$

← one path leads to both outcomes  
← 8 possible paths

b. What is the probability of the coin landing on tails and spinning a vowel?

$$P(T, \text{vowel}) = \frac{2^{\div 2}}{8^{\div 2}} = \frac{1}{4}$$

**Example**

a. What does it mean when a probability is equal to zero?

The outcome you are looking for does not exist.

$$P(T, S)$$

↑  
not on the spinner

b. What does it mean when a probability is equal to one?

The outcome you are looking for describes every possible outcome

$$P(\text{letter})$$

↑  
every entry on the spinner

**Example** Use a table to list the sample space for rolling two dice.

← 6 sides.

	1	2	3	4	5	6	Die 1
1	1 1	1 2	1 3	1 4	1 5	1 6	
2	2 1	2 2	2 3	2 4	2 5	2 6	
3	3 1	3 2	3 3	3 4	3 5	3 6	
4	4 1	4 2	4 3	4 4	4 5	4 6	← Sample Space.
5	5 1	5 2	5 3	5 4	5 5	5 6	(size is 36)
6	6 1	6 2	6 3	6 4	6 5	6 6	

a. What is the probability of rolling two of the same numbers?

$$P(\text{doubles}) = \frac{6}{36} = \frac{1}{6}$$

← possibilities      ← total

b. What is the probability of getting a sum of six?

$$P(\text{sum of 6}) = \frac{5}{36}$$

c. What is the probability of getting a sum less than four?

$$P(\text{sum} < 4) = \frac{3}{36} = \frac{1}{12}$$

d. What is the probability of getting a sum that is at least eight?

$$P(\text{sum} \geq 8) = \frac{15}{36} = \frac{5}{12}$$

