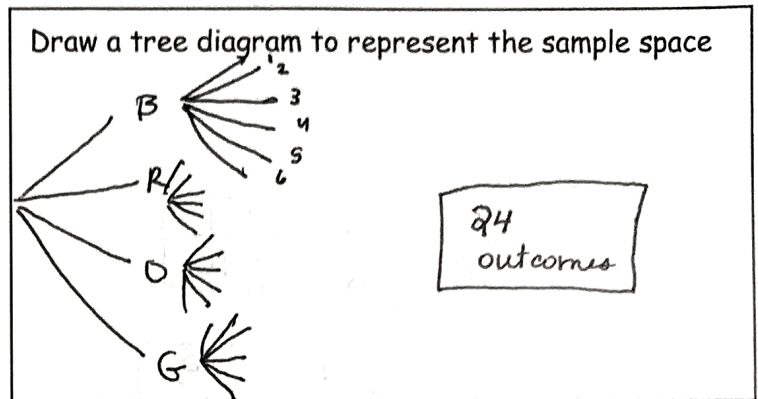


Aim: How do we find Compound Probability without sample spaces?

Date _____

Do Now: The spinner is spun and the die is rolled. Find each probability.

- a. P(red and 2) $\frac{1}{24}$
- b. P(purple and composite) $\frac{0}{24}$
- c. P(orange or green, # > 3) $\frac{4}{24}$



Critical Thinking: Do you always need to list the sample space?

Let's show how to find the probabilities of the do now questions without looking at the sample space.

- a. P(red and 2) $\frac{1}{4} \cdot \frac{1}{6} = \frac{1}{24}$
- b. P(purple and composite) $\frac{0}{24}$
- c. P(orange or green, # > 3) $\frac{2}{4} \cdot \frac{3}{6} = \frac{6}{24}$

Rule: $P(A \text{ and } B) = P(A) \cdot P(B)$

1. Find the Probability of the Compound Events:

- a. What is the probability of getting heads and a 2?

$$\frac{1}{2} \cdot \frac{1}{6} = \frac{1}{12}$$



- b. What is the probability of rolling a number greater than or equal to 4 and flipping tails?

$$\frac{3}{6} \cdot \frac{1}{2} = \frac{3}{12}$$

- c. What is the probability of rolling a prime number and flipping heads?

$$\frac{3}{6} \cdot \frac{1}{2} = \frac{3}{12}$$

- d. What is the probability of rolling a 2 or 5 and flipping heads or tails

$$\frac{2}{6} \cdot \frac{2}{2} = \frac{4}{12}$$

2. You spin the spinner once then flip the coin once. Find the probability of each event.



a. Spinning a 3 and flipping a heads

$$\frac{1}{5} \cdot \frac{1}{2} = \boxed{\frac{1}{10}}$$

b. Spinning an odd number and flipping a heads

$$\frac{3}{5} \cdot \frac{1}{2} = \boxed{\frac{3}{10}}$$

c. Spinning a number less than or equal to 3 and flipping a tails

$$\frac{3}{5} \cdot \frac{1}{2} = \boxed{\frac{3}{10}}$$

d. Spinning an 8 and flipping a tails

0

e. Not spinning a 4 and flipping a heads

$$\frac{4}{5} \cdot \frac{1}{2} = \boxed{\frac{4}{10}}$$

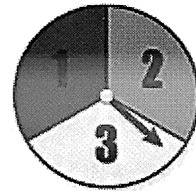
f. Spinning a number that is neither prime nor composite and flipping heads

$$\frac{1}{5} \cdot \frac{1}{2} = \boxed{\frac{1}{10}}$$

3. You spin the spinner, flip a coin, and then spin the spinner again. Find the probability of each:

a. Spinning 3, flipping heads, then spinning a 1

$$\frac{1}{3} \cdot \frac{1}{2} \cdot \frac{1}{3} = \boxed{\frac{1}{18}}$$



b. Spinning an odd number, flipping heads, then spinning a 3

$$\frac{2}{3} \cdot \frac{1}{2} \cdot \frac{1}{3} = \boxed{\frac{2}{18}}$$

c. Spinning an even number, flipping tails, then spinning an odd number

$$\frac{1}{3} \cdot \frac{1}{2} \cdot \frac{2}{3} = \boxed{\frac{2}{18}}$$

d. Not spinning 1, flipping tails, then not spinning a prime number

$$\frac{2}{3} \cdot \frac{1}{2} \cdot \frac{1}{3} = \boxed{\frac{2}{18}}$$