

1. An experiment consists of tossing a coin three times. Consider the following events.

- A: The first toss is heads.
- B: The second toss is heads.
- C: There are two consecutive heads.
- D: There are two consecutive tails.
- E: The first toss is heads and the second toss is heads.
- F: There are neither two consecutive heads nor two consecutive tails.

- Make the tree diagram.



- State the entire sample set. That is, list all possible outcomes.

$\{ HHH, HHT, HTH, HTT, THH, THT, TTH, TTT \}$

- State the possible outcomes of EVENT A.

$\{ HHH, HHT, HTH, HTT \}$

- State the possible outcomes of EVENT B.

$\{ HHH, HHT, THH, THT \}$

- State the possible outcomes of EVENT C.

$\{ HHH, HHT, THH \}$

- State the possible outcomes of EVENT D.

$\{ HTT, TTH, TTT \}$

- State the possible outcomes of EVENT E.

$\{ HHH, HHT \}$

- State the possible outcomes of EVENT F.

$\{ HTH, THT \}$

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2. Some students were asked what pets they have at home. The following table shows the results of the survey, with the students identified by numbers.

Student	Dog	Cat	Hamster	Bird	Fish
1					
2	✓	✓			
3					
4	✓				
5			✓		✓
6					✓
7	✓	✓		✓	
8					
9		✓		✓	
10	✓	✓			

A student is chosen from the group at random. Consider the following events.

- D: The student has a dog.  $\{2, 4, 7, 10\}$
- C: The student has a cat.  $\{2, 7, 9, 10\}$
- H: The student has a hamster.  $\{5\}$
- B: The student has a bird.  $\{7, 9\}$
- F: The student has a fish.  $\{5, 6\}$

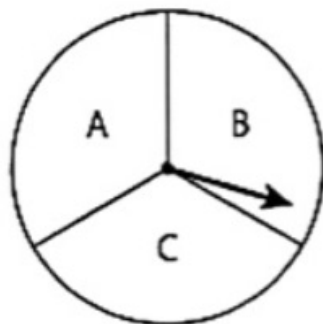
Describe each of the following events by listing outcomes.

- C  $\{2, 7, 9, 10\}$
- $\bar{B}$   $\{1, 2, 3, 4, 5, 6, 8, 10\}$
- $D \cap B$   $\{7\}$
- $\overline{D \cap C}$   $\{1, 3, 4, 5, 6, 8, 9\}$
- $H \cup F$   $\{5, 6\}$
- $\overline{D \cup C}$   $\{1, 3, 5, 6, 8\}$

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3. An experiment consists of spinning the following spinner two times.



Create a Tree Diagram!!!

Consider the following events.

P: two vowels

Q: no vowels

R: two consonants

S: exactly one vowel

T: exactly one consonant



$\{AA, AB, AC, BA, BB, BC, CA, CB, CC\}$

- State the possible outcomes of EVENT P.

$\{AA\}$

- State the possible outcomes of EVENT Q

$\{BB, BC, CB, CC\}$

- State the possible outcomes of EVENT R.

$\{BB, BC, CB, CC\}$

- State the possible outcomes of EVENT S.

$\{AB, AC, BA, CA\}$

- State the possible outcomes of EVENT T.

$\{AB, AC, BA, CA\}$

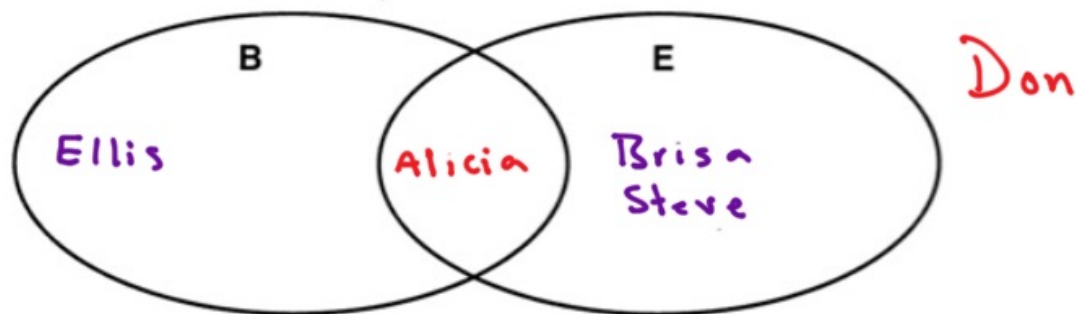
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4. Hector has entered the following names in the contact list of his new cell phone: Alicia, Brisa, Steve, Don, and Ellis. He chooses one of the names at random to call. Consider the following events.

*B*: The name begins with a vowel.

*E*: The name ends with a vowel.



Describe each of the following events by listing outcomes.

**B**  
 { Ellis, Alicia }  
 $B \cap E$   
 { Alicia }  
 $\overline{B}$   
 { Brisa, Steve, Don }

**E**  
 { Alicia, Brisa, Steve }  
 $B \cup E$   
 { Ellis, Alicia, Brisa, Steve }  
 $\overline{B \cup E}$   
 { Don }

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