



1. Use the above sets to answer the following:

a. $(A \cap B) \cup C$

b. $A \cap (B \cup C)$

c. $\sim A$

d. $(C \cap B)'$

e. $(A \cup C) \cap \overline{(A \cup B)}$

2. Set $H\{2, 3, 5, 1, 7, 13, 10\}$, $L\{2, 3, 5, 7, 11, 13, 17, 19, 23, 29\}$, $K\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 26\}$

a. $(H \cap L)$

b. $H \cap (L \cup K)$

c. $\overline{(L \cup K)}$

Identify if the following are mutually exclusive or not.

- Rolling a die and getting a 3 and a 4.
- Picking an Ace and a Heart in one drawing from a deck of cards.
- Having Instagram and snapchat on an iPhone.
- Picking a 5 and a 10 in one drawing from a deck of cards.
- Standing outside and getting struck by lightning.

7. Tiffany has an obsession with pop figures. She currently has 6 disney, 7 marvel, 2 monster high, 10 key chains, 3 hero, and even 2 coffee mugs. She plans to show her collection to her youtube channel. Find the following probabilities.
- Tiffany will select a Disney figure and then a marvel with replacement? (percent)
 - Tiffany will select a coffee mug and a hero without replacement? (reduced fraction)
 - Tiffany will select a Key chain or a monster high character? (decimal)
 - Tiffany will select a Disney, monster high, or marvel character? (percent)
8. Bill has a small collection of 55 postcards. He currently has 7 postcards from the Russia, 15 postcards from France, 11 postcards from the United Kingdom, and 22 from the United States. He currently has them all in a box and unorganized.
- Bill reaches into the box, what is the probability that he would select a postcard from the United States or from Russia?
 - What is the probability that Bill chooses a United Kingdom postcard and then France post card without replacement?
 - What is the probability of Bill choosing in one drawing, a postcard from France or a postcard from a European country?
 - What is the probability of choosing a postcard from the Russia, putting it back, and then choosing one from the United Kingdom?