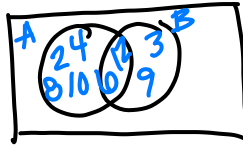


Set Theory Notes

Set theory is used in mathematics and statistics as a way to shorten statements.

Say we have two events, A and B. Let $A = \{2, 4, 6, 8, 10, 12\}$ and $B = \{3, 6, 9, 12\}$.
Draw a Venn diagram below of A and B.



Fill in the table below. Remember, $A = \{2, 4, 6, 8, 10, 12\}$ and $B = \{3, 6, 9, 12\}$.

	Definition	Picture	Numbers		Definition	Picture	Numbers
A^c	Not A		3 9	B^c	Not B		2 4 8 10
$A \cap B$	A and B		6 12	$A \cup B$	A OR B		2 4 6 8 10 12 3 9
$A^c \cap B$	Not A and B		3 9	$A \cap B^c$	A and not B		2 4 8 10
$A^c \cup B$	Not A OR B		3 6 9 12	$A \cup B^c$	A OR Not B		2 4 6 8 10 12
$A^c \cap B^c$	Not A AND Not B			\cap : and \cup : OR			

Consider the following sets of numbers:

3 6 9 12

A = {all odd whole numbers ≤ 20 }

B = {multiples of 3 ≤ 20 }

C = {all even whole numbers ≤ 20 }

1, 3, 5, 7, 9, 11, 13, 15, 17

3 6 9 12
15 18

2 4 6 8 10

12 14 16 18 20

Define the following sets. 19

1. $A \cap B$ 3, 9, 15

2. $B \cap C$ 6 12 18

3. $A \cup C$ all from 1 to 20

4. $A \cup B$ all odd < 20

5. $A \cap B \cap C$ 6, 12, 18

none

6. $A \cap C$

none

7. $B \cup C$ 3 6 9 12 15 18
all even ≤ 20

8. $A \cup B \cup C$

all $\# \leq 20$

