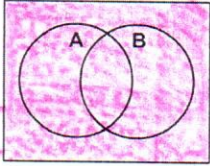
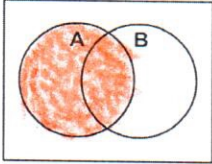
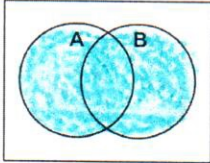
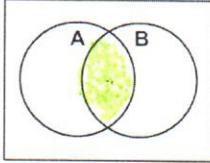
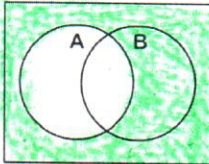


Vocabulary:

OR

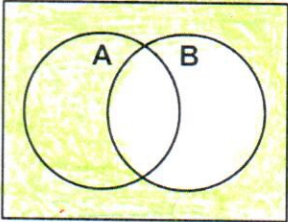
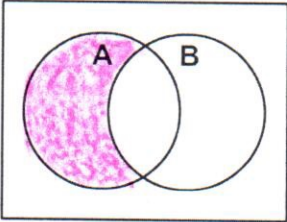
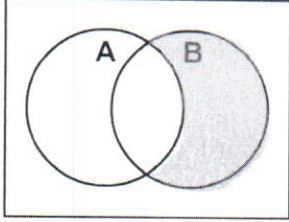
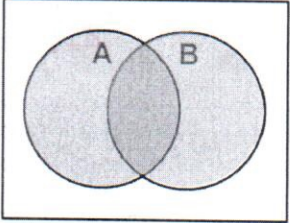
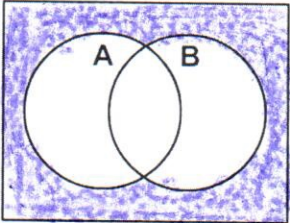
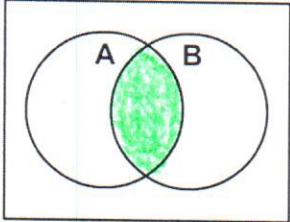
and

Sample Space	Event	Union	Intersection	Complement
What is it? the set of all possible outcomes	What is it? something that happens within the sample space	What is it? combination of 2 events	What is it? overlap of 2 events	What is it? <u>NOT</u> the event
Symbol: $S = \{ \}$	Symbol: A	Symbol: \cup	Symbol: \cap	Symbol: A^c
Venn Diagram: Shade S	Venn Diagram: Shade A	Venn Diagram: Shade $A \cup B$	Venn Diagram: Shade $A \cap B$	Venn Diagram: Shade A^c
				

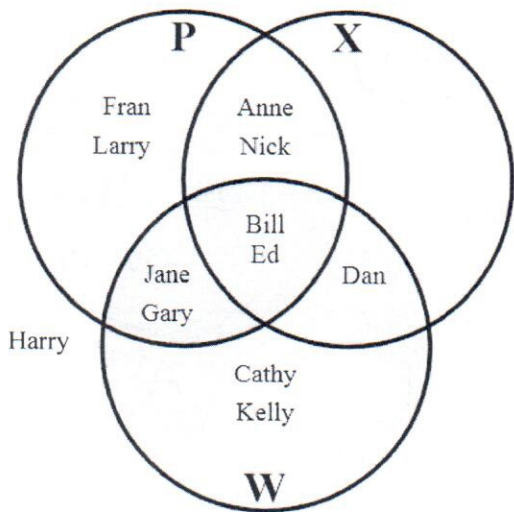
Example 1:

Event A: Students who like country music

Event B: Students who like rock music

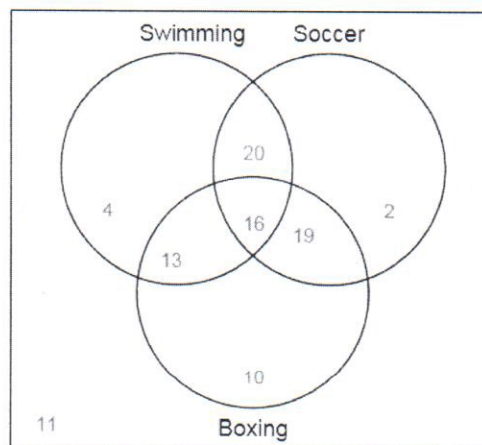
<p>Shade event B^c: NOT B</p>  <p>What does this mean in words? students who do <u>NOT</u> like rock music.</p>	<p>Shade event $A \cap B^c$:</p>  <p>What does this mean in words? students who <u>ONLY</u> like country music.</p>	 <p>Write this event in symbols: $B \cap A^c$ OR $A^c \cap B$</p> <p>What does this mean in words? students who <u>ONLY</u> like rock music.</p>
 <p>Write this event in symbols: $A \cup B$</p> <p>What does this mean in words? students who like country OR rock music.</p>	<p>Shade: Students who don't like either country or rock.</p>  <p>Write this event in symbols: $(A \cup B)^c$</p>	<p>Shade: Students who like both country and rock.</p>  <p>Write this event in symbols: $A \cap B$</p>

Example 2:



- a) What is the sample space?
 $S = \{ \text{Harry, Fran, Larry, Jane, Gary, Anne, Nick, Bill, Ed, Dan, Cathy, Kelly} \}$
- b) List all the outcomes for X.
 Anne, Nick, Bill, Ed, Dan
- c) What names make up the event W^c ? NOT W.
 Harry, Fran, Larry, Anne, Nick
- d) What names make up the event $W \cap P$? W and P
 Bill, Ed, Jane, Gary
- e) What names make up the event $P \cap X^c$? P and X^c
 Fran, Larry, Jane, Gary
- f) What names make up the event $P^c \cup W$? NOT P OR W
 Dan, Cathy, Kelly, Harry, Jane, Gary, Bill, Ed

Example 3:



95 students

a) How many students like both Soccer and Swimming? $20 + 16$ 36	b) How many students only like Soccer? 2	c) How many students do not like both Soccer and Boxing? $95 - 35$ 60	d) How many students do not like either Swimming or Soccer? $10 + 11$ 21
e) How many students like Swimming or Soccer, but not Boxing? $4 + 20 + 2$ 26	f) What is the probability of choosing a student who likes all three? $16/95$ 16.8%	g) What is the probability of choosing a student who likes Swimming or Boxing? $82/95$ 86.3%	h) What is the probability of choosing a student who likes only Swimming? $4/95$ 4.2%

$(SW \cup SO) - B$

$(SW \cup B)$