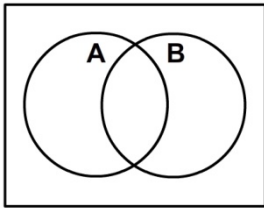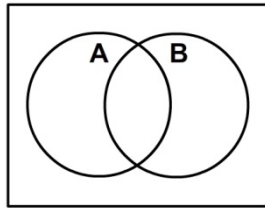# SM2 10.1: Events & Sample Spaces

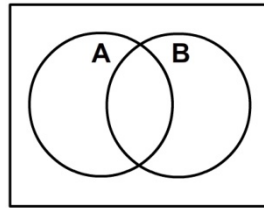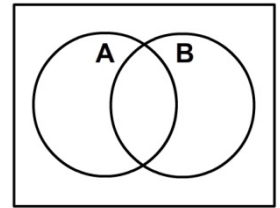*Problems:* Shade the area on the Venn Diagram that represents the given events.
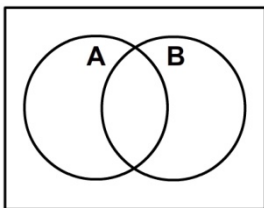
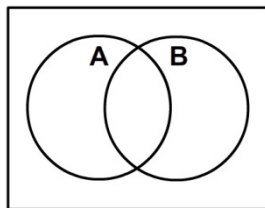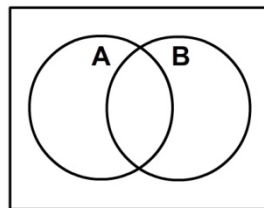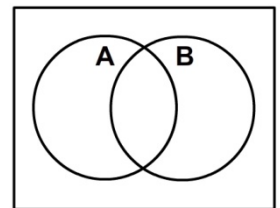1) Event: A

2) Event: B

3) Event: A^C

4) Event: S

5) Event: $A \cup B$

6) Event: $A \cap B$

7) Event: $A^C \cap B$

8) Event: $A \cup B^C$

Use the Venn Diagram to the right to answer questions 9-17:

Crayola Washable Paints

Turquoise   Violet   Orange

Olympic   **American**
              Flag
Yellow   Blue

Black   Red
              White

Green

Brown   Peach   Magenta
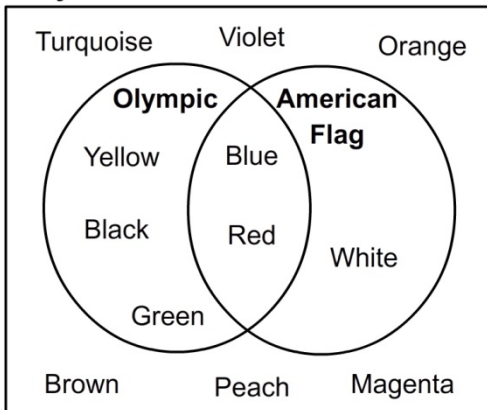
9) What is the sample space S?

10) What is the subset of Olympic colors? Call it Event O.

11) What is the subset of American Flag Colors? Call it Event A.
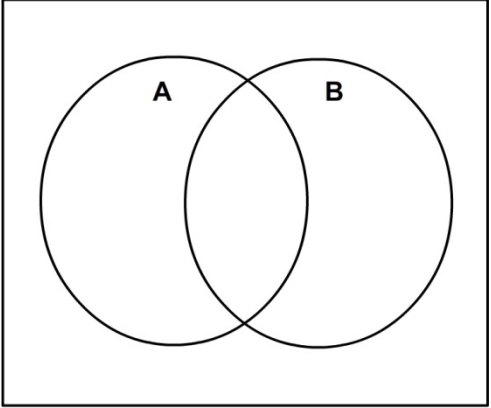
12) What colors make up the event: $O \cup A$?

13. What colors make up the event: $O \cap A$?

14) What colors make up the event: A^C ?

15) What colors make up the event: $O^C \cup A$?

16) What colors make up the event: $O^C \cap A^C$?

17) What colors make up the event: $\sim(O \cap A)$?

	The Sample Space $S = \{0,1,2,3,4,5,6,7,8,9\}$
	Event $A = \{3,4,5,6,7\}$
	Event $B = \{1,2,3,4,5\}$
	18) Represent the sample space and events A and B in the Venn Diagram to the right. (Write the numbers where they belong)
	19) List all the outcomes for $A \cup B$.
	20) List all the outcomes for $A \cap B$.
	21) List all the outcomes for A^C.

Choosing a single card from a typical deck of 52 cards made up of 4 suits (spades, clubs, hearts and diamonds) with 13 black spades, 13 black clubs, 13 red hearts and 13 red diamonds. Each suit has 3 face cards, a Jack, Queen and King. If you play cards you already know all this, if not, now you do.

Let $A = \{$draw a red card$\}$ Let $B = \{$draw a diamond$\}$ Let $C = \{$draw a face card$\}$

22) What cards would make up the event $A \cup B$?

23) What cards would make up the event $A \cap B$?

24) What cards would make up the event $\sim A$?

25) What cards would make up the event $B \cap C$?

26) What cards would make up the event $A^C \cap C$?

27) What cards would make up the event $A^C \cap B$?

28) What cards would make up the event $A \cap B^C$?

29) What cards would make up the event $A^C \cap B^C$?

30) What cards would make up the event $A^C \cup B^C$?

BONUS: Draw a Venn Diagram of the 3 Events.