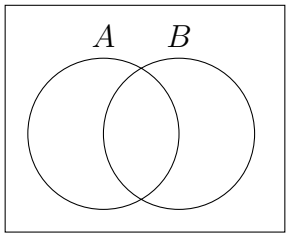
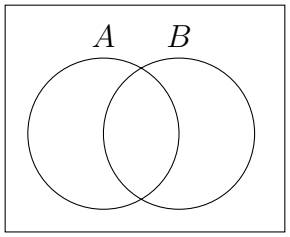
152 Test 1 Name: _____

Let shade in the following sets in the Venn Diagram:

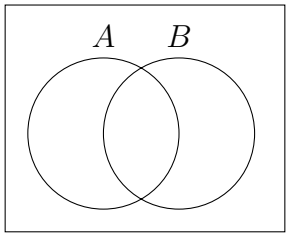
1. $A \cup B$



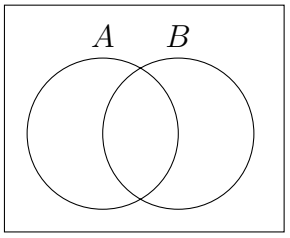

2. $A \cap B$



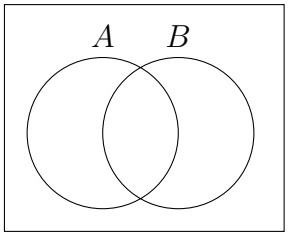

3. $A^c$



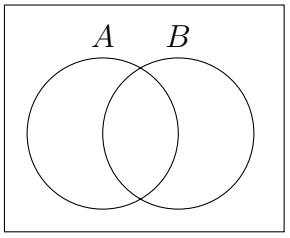

4. $B^c$

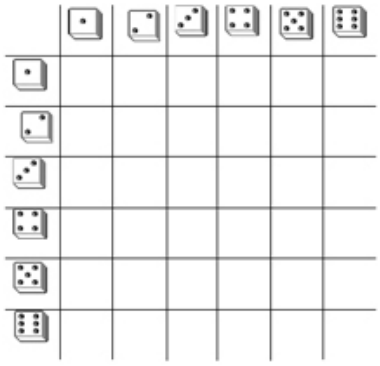



5. $A^c \cup B^c$




6. $(A \cap B)^c$





Roll two dice and let $A$ be the event that you roll a 4 and $B$ be the event you roll doubles and $C$ be the event you roll a 5.

1. Describe the following sets in plain English:

   (a) $A \cup B$

   (b) $A \cap B$

   (c) $B \cup C$

   (d) $B \cap C$

2. Find the following probabilities:

   (a) $P(A \cap B)$

   (b) $P(A \cup B)$

   (c) $P(B \cap C)$

   (d) $P(B \cup C)$

3. Let $P(A) = .7, P(B) = .5, P(A \cap B) = .3$ Find the following

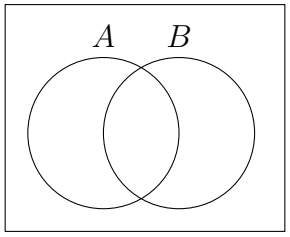
   (a) $P(A \cup B)$

   (b) $P(A^c)$

   (c) $P(A|B)$

   (d) $P(B|A)$

   Filling in venn diagram may help, but it is not necessary




4. An urn contains 10 balls, 4 are red and 6 are white. You pick one at random, note its color and then replace it and 5 others of the same color in the urn. Then select another. Let $A$ be the event the first ball chosen is red, $B$ be the event the second ball chosen is red.

   (a) $P(A) =$

   (b) $P(B|A) =$

   (c) $P(A \cap B) =$

   (d) $P(A^c) =$

   (e) $P(B|A^c) =$

   (f) $P(A^c \cap B) =$

   (g) $P(B) =$
   (hint, this is the sum of your answer in (c) and (f)