> Show all your work. Late Homework will not be accepted without prior approval.
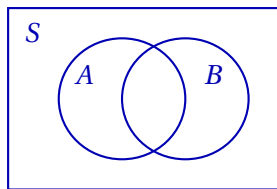
1. An experiment consists of tossing two indistinguishable dice.

   (a) Find the sample space.

   (b) Find the event that the sum of the dice is 8.

   (c) Find the event that the sum of the dice is greater than 8.

   (d) Find the event that the sum of the dice is greater than 12.

2. A die is thrown. Let E be the event that the number thrown is even and F the event that the number thrown is greater than 4. Find

   (a) E (b) F (c) $E \cap F$

   (d) E' (e) F' (f) $E \cup F$

   (g) $E - F$ (h) $E' \cup F$ (i) $(E \cap F')'$

3. Let A and B be events in the sample space S as shown. Draw Venn diagrams for

   (a) A (b) B' (c) $A \cup B$ (d) $A \cup B'$

   (e) $A' \cap B$ (f) $A - B$ (g) $A' - B$ (h) $(A \cap B')'$

Bonus. Rewite the following events using only A, B, $\cap$, $'$ and parentheses.

   (a) $A \cup B$ (b) $A - B$ (c) $A \triangle B$