

## HW 10 Due : Friday, Nov. 1

- (1) (12.2 Problem 1) Determine the sample space for the random experiment of tossing a coin three times.
- (2) (12. 2 Problem 5-6) Assume that  $\Omega = \{1, 2, 3, 4, 5, 6\}$ ,  $A = \{1, 3, 5\}$  and  $\Omega = \{1, 2, 3\}$
- (a) Find  $A \cup B$  and  $A \cap B$ .
  - (b) Find  $A^c$  and show that  $(A^c)^c = A$ .
  - (c) Find  $(A \cup B)^c$
  - (d) Are  $A$  and  $B$  disjoint?
- (3) (12.2 Problem 18) Assume that  $P(A) = 0.4$ ,  $P(B) = 0.4$  and  $P(A \cup B) = 0.7$ . Find  $P(A \cap B)$  and  $P(A^c \cap B^c)$ . (Hint: Use  $P(A \cup B) = P(A) + P(B) - p(A \cap B)$ ,  $(A \cup B)^c = A^c \cap B^c$  and  $P(D^c) = 1 - P(D)$ .)