Homework 2
Due Wednesday, September 9

WMMY: Ch 2 # 25, 30, 31, 41, 49, 77, 79, 80, 93

Problem A: Roll two dice

    Let A be the event "roll doubles", B the event "the sum is seven", C the event "the sum is less than five", and D the event "the product is odd".

    Are A and B independent? Are they disjoint?

    Are A and C independent? Are they disjoint?

    Are B and C independent? Are they disjoint?

    Compute the probabilities of A, B, C, and D.

Problem B: Poker hands

    Consider a poker hand which is five cards dealt from a freshly shuffled deck of 52 cards. (Recall that a deck of cards has 4 suits, ♣, ♦, ♥, ♠, and each suit has 13 ranks, 2-10, J, Q, K, A).

    a.   How many possible hands are there?

    b.   How many hands are there with all five cards of the same suit (a "flush")? What's the probability of being dealt a flush?

    c.   How many hands are there with four cards of the same rank ("four of a kind")? What's the probability of being dealt four of a kind?

    d.   A "full house" has three cards of one rank, and two cards of another rank. How many full house hands are there? What's the probability of being dealt a full house?

    (The Wikipedia page "List of Poker Hands" has more detailed descriptions of the hands, examples, and also has the answers).