MATH 110 – QUIZ 7 – 12 OCTOBER 2006

Answer all of the following questions in the space provided.

1. (2 pts. each) Consider the experiment of tossing a coin three times and recording the result.

(a) Write down the sample space for this experiment. (Hint: There should be 8 outcomes in this sample space.)

$S = \{HHH, HHT, HTH, HTT, THH, THT, TTH, TTT\}$ //

(b) Assuming that each outcome is equally likely, what is the probability of the event E = "exactly two heads are observed."

$E = \{HHT, HTH, THH\}$

$Pr(E) = \frac{n(E)}{n(S)} = \frac{3}{8}$ //

2. (2 pts. each) Suppose that $Pr(E) = .5$, $Pr(F) = .6$, and $Pr(E \cup F) = .9$.

(a) Find $Pr(E \cap F)$.

$Pr(E \cup F) = Pr(E) + Pr(F) - Pr(E \cap F)$

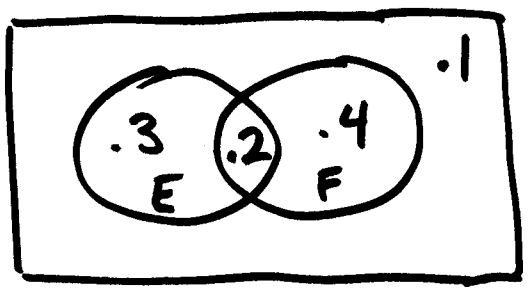
$.9 = .5 + .6 - Pr(E \cap F)$

$\therefore Pr(E \cap F) = .2$ //

(b) Find $Pr(E \cap F')$. (Hint: A Venn diagram might be helpful. Also for part (c).)

$E \cap F'$

$Pr(E \cap F') = .3$ //



(c) Find $Pr(E' \cup F')$.

$E' \cup F'$

$Pr(E' \cup F') = .8$ //