Solutions to Homework 1

1) Let A = Allison B = Betty C = Chelsea

$\Omega = \{ABC, ACB, BAC, BCA, CAB, CBA\}$

2) M: # of men W = # of women

M_c: # of men who went to college

W_c: # of women who went to college

$M+W=320$, $M=170 \Rightarrow W=150$

$M_c+W_c=160$, $M_c=100 \Rightarrow W_c=60$

$W-W_c=90$

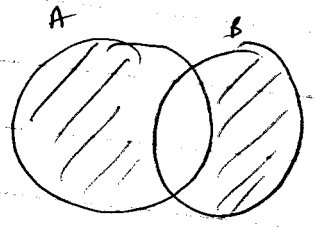
3) a) $26^3 \times 10^3$

b) $\frac{26\times25\times24\times10\times9\times8}{26^3\times10^3}$

4) $5! \times 6!$

5) $p^2+p=1 \Rightarrow p^2+p-1=0$

This equation has two roots: $\frac{-1+\sqrt{5}}{2}$ and $\frac{-1-\sqrt{5}}{2}<0$. Thus, $p=\frac{-1+\sqrt{5}}{2}\approx 0.62$

6) 

We need the probability of the shaded region which is

$P(A\cup B) - P(A\cap B) = P(A)+P(B)-2P(A\cap B)$

$= 0.7$