Homework Assignment 2

Rabinowitz

3. ¼
5. $1/8 + 1/8 = ¼$
7. (i) $(3/11)^2 + (8/11)^2 = 73/121$
8. (ii) $[2/5] / [(2/5) + (3/5)(2/4)(2/3)] = 2/3$
19. (i) Male U.S. Senators / U.S. Males
    (ii) Male Senators / U.S. Senators
24. $[(.9)(1/90)] / [(.9)(1/90) + (.03)(89/90)] = .2521$
27. $[(2/3)(1/5)] / [(1/5) (1/2 + 2/3 + ¾ + 4/5)] = .2448$
29. $[(9/10)(1/10)] / [(1/10) + (9/10)(1/10)] = 9/19$

Tjims

6.2 First Bowl: $1 – (7/10)(6/9) = .533$
    Second Bowl: $1 – (70/100)(69/99) = .5121$
    First Bowl
6.4 $(0)(.2) + (1)(.3) + (1)(.5) = .8$
6.8 P(Card has the same color on both sides) = 2/3
    Not a fair bet
6.10

	A 3 Red 2 White	B 4 Red 3 White
No Replacement		
2 Red	$(3/5)(1/2) = .3$	$(4/7)(1/2) = .2857$
2 White	$(2/5)(1/4) = .1$	$(3/7)(1/3) = .1429$
1 Each	$(3/5)(1/2) + (2/5)(3/4) = .6$	$(4/7)(1/2) + (3/7)(2/3) = .5714$
Replacement		
2 Red	$(3/5)^2 = .36$	$(4/7)^2 = .3265$
2 White	$(2/5)^2 = .16$	$(3/7)^2 = .1837$
1 Each	$2(3/5)(2/5) = .48$	$2(4/7)(3/7) = .4897$

Use no replacement. Choose the one with the higher probability.

6.12   P(Death | Operation) = (.25)(.5) + (.75)(.1) = .2
        P(Death | No Operation) = (.25)(.95) = .2375
6.14   [1/100] / [{1/100 + (99/200)] = .0198
8.2   (1/2) / (7/8) = 4/7 = .5714
8.4   P(Doesn't reach Sydney) = .05 + (.95)(.03) + (.95)(.97)(.02) = .09693
        P(Lost in Dubai | Doesn't reach Sydney) = [(.95)(.03)] / .09693 = .294
8.8   (1/6)(1/2 + 1/4 + 1/8 + 1/16 + 1/32 + 1/64) = .164
8. [(.1)(.4)] / [(.1)(.4) + .6] = .0625

Prolem **A.**
a) 5 (4!/6!) = 1/6
b) 4 (4!/6!) = 2/15
c) 3!^2/6! = 1/20
d) 3!/6! = 1/120

Prolem **B.**
a)   (6 choose 4)/(20 choose 5)
b) (8 choose 5)/(20 choose 5)
c) (10 choose 2)(10 choose 3)/(20 choose 5)
d) P(all five are odd and at most 15) + P(4 are odd and at most 15, and the fifth is over
15 and odd) = (8 choose 5)/(20 choose 5) + (8 choose 4)(2 choose 1)/(20 choose 5)