April 13, 2007
Section 11.1

Problem #1

	1	2	3	4
1	2	3	4	5
2	3	4	5	6
3	4	5	6	7
4	5	6	7	8

sample space{R1W1, R1W2,…}

(f) standard deviation

$$Mean = 2\left(\frac{1}{16}\right)+3\left(\frac{2}{16}\right)+4\left(\frac{3}{16}\right)+5\left(\frac{4}{16}\right)+6\left(\frac{3}{16}\right)+7\left(\frac{2}{16}\right)+8\left(\frac{1}{16}\right)=\frac{80}{16}=5$$

$$Variance = (2-5)^2\left(\frac{1}{16}\right)+(3-5)^2\left(\frac{2}{16}\right)+(4-5)^2\left(\frac{3}{16}\right)+\left(5-5^2\right)\left(\frac{4}{16}\right)+(6-5)^2\left(\frac{3}{16}\right)+(7-5)^2\left(\frac{2}{16}\right)+(8-5)$$

$$=\frac{9+8+3+0+3+8+9}{16}=\frac{40}{16}=\frac{5}{2}$$

$$StdDev=\sqrt{\frac{5}{2}}=\sqrt{2.5}$$

Problem #5

Give away $10,000

100,000 people enter; your chance of winning is $\frac{1}{100,000}$

Cost is 32-cent stamp

Outcomes	win	lose
Gain/loss	+$9,999.68	-0.32
Probability	$\frac{1}{100,000}$	$\frac{99,999}{100,000}$

$$E=(9,999.68)\left(\frac{1}{100,000}\right)-0.32\frac{99,999}{100,000}=-0.22$$

Problem #19

Result	Sale #1	Sale #2	Sale #1 and #2	No Sale
Probability	0.1	0.15	0.04	x

Since these are the only possible outcomes, the probabilities must add to 1

Then x = 1 – (0.1 + 0.15 + 0.04) = 1 – 0.29 = 0.71

I assumed that each of these columns is only marked once; that is, that they are independent events