Name_____

Rules for Means and Variances
Assume X and Y are independent random variables.

1. Find the mean, variance, and standard deviation of X. (stat, calc, 1-var stat L1,L2)

X	-1	0	1	2
p	0.3	0.1	0.5	0.1

2. Find the mean, variance, and standard deviation of Y.

Y	2	3	5
p	0.6	0.3	0.1

3. a. Let W = 3 + 2 X. Find the mean, variance, and standard deviation of W using the rules.

b. Construct W and find the mean, variance, and standard deviation of W using 1-var stat.

W				
p				

4. a. Let W = X + Y. Find the mean, variance, and standard deviation of W using the rules.

b. Construct W and find the mean, variance, and standard deviation of W using 1-var stat. (Be careful: There are 12 different sums. Use the product of the probabilities.)

W												
p												

5. a. Let W = X - Y. Find the mean, variance, and standard deviation of W using the rules.

b. Construct W and find the mean, variance, and standard deviation of W using 1-var stat.

W												
p												

6. a. Let W = X + X. Find the mean, variance, and standard deviation of W using the rules.

b. Construct W and find the mean, variance, and standard deviation of W using 1-var stat.

W													
p													

7. a. Let $W = 2X$. Find the mean, variance, and standard deviation of W using the rules.

b. Construct W and find the mean, variance, and standard deviation of W using 1-var stat.

W				
p				

Part II : Finding the Cherry Starbursts – Binomial Practice

A bag of Starburst candies can be considered an SRS of the whole population of Starburst candies. Since there are 4 flavors, the probability that each Starburst is cherry flavor is ¼ = 0.25. Each bag of Starburst contains 200 candies. Suppose we buy one bag of Starburst.

X □ the number of cherry flavor Starburst candies in the bag

1. Is this a binomial distribution? (show me)

2. What is n?_____ What is p?_____

3. What is the mean of X?_____ Interpret:

4. What is the standard deviation of X?_____ Interpret:

5. What is the probability of getting exactly 60 cherry flavored starburst?

6. What is the probability of getting at most 60 cherry flavored starburst

Extra Stuff: Normal Approximation to the Binomial

Redo problem #6 above with a normal distribution. To do this $np \geq 10$ and $n(1-p) \geq 10$.