Probability Discussion Name_____
Extra Credit-Due 3/27

Consider two games at a village fair, Game A and Game B. Let the gain in dollars in one play of Game A be denoted by the random variable X, and let the gain in dollars in one play of Game B be denoted by the random variable Y. (A negative gain means that you receive less money back from the game than you paid to take part.)

The probability distributions of X and Y are given below.

X	−5	−2	1	4	10
Probability	0.33	0.27	0.20	0.13	0.07

Y	−5	−2	1	4	25
Probability	0.37	0.32	0.16	0.10	0.05

You may assume that the result of any play of either of the games is independent of the result of any other play of either of the games.

(a) In any one play of Game A, what is the probability that your gain will be positive? In any one play of Game B, what is the probability that your gain will be positive?

(b) The expected value and the standard deviation of the money gained in one play of Game A are −\$0.77and \$4.24, respectively. Calculate the expected value and the standard deviation of the money gained in one play of Game B.

(c) Suppose that you are considering making a large number of plays of Game A, or making a large number of plays of Game B, and you want to decide which of these is the more sensible financially. A friend tells you that, since your gain is more likely to be positive in any one play of Game A than it is in any one play of Game B, Game A should be your choice. Is this a correct argument? Explain why or why not.