**Where are all the orange Reese’s Pieces?**



Reese loves orange Reese’s pieces, but the last time she got a fun size bag there were no orange! The bag was manufactured at a factory where 1,000 Reese’s Pieces are made (40% orange) in each batch. To make a fun size bag, 10 Reese’s pieces are randomly chosen from a batch.

1. Is this a perfectly binomial setting? Explain.
2. Find the probability of getting 0 orange Reese’s pieces in a group of 10 from the factory if this is **not** a binomial setting (use rules of probability). Show your work.
3. Find the probability of getting 0 orange Reese’s pieces in a group of 10 from the factory if this were a binomial setting (use binomial formula). Show your work.
4. How do your answers from #2 and #3 compare? Why do you think this is?

To ensure that Reese gets more orange Reese’s pieces, she buys a jumbo bag of Reese’s pieces which contains 600 Reese’s pieces. Let *X* = number of orange Reese’s pieces in a bag of 600 Reese’s pieces. Use a binomial distribution to model the situation.

1. What is the probability of getting at most 210 orange Reese’s pieces?
2. If we were to make a histogram of *X*, what do you think the shape would be?
3. Find the mean and standard deviation of *X*. Mean = \_\_\_\_\_\_\_\_ SD = \_\_\_\_\_\_\_\_
4. Redo problem #5 above with a normal distribution and compare your answers.