Mean and Standard Deviation of a Binomial Distribution NAME:

You throw five darts at a dartboard. For each throw, the probability of getting a bullseye is 0.30 or 30%. Let X be the number of bullseyes hit.

Let's examine this distribution and find its mean and standard deviation.

1a. These are the criteria that define a binomial distribution. Put a check mark next to each to indicate that it is true for this dart game. Answer the questions that follow.

_____ a.) The experiment is performed a fixed number of times, n. Each repetition of the experiment is called a trial. How many trials does this game have?

_____ b.) The trials are independent. This means the outcome of one trial will not affect the outcome of the other trials.

_____ c.) For each trial, there are two mutually exclusive (or disjoint) outcomes, success or failure. What are the two possible outcomes for each trial of this dart game?

_____ d.) The probability of success, p, is fixed for each trial of the experiment. What is the probability of success in this dart game?

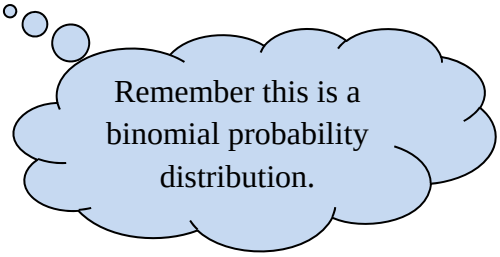
1b. Recall, we are letting X represent the number of bullseyes hit. What are the possible values of X ? Is this random variable discrete or continuous?

2. Use a calculator to complete the table. Round your answers to three decimal places. You do *not* need to show your work but please record the values of n and p that you used.

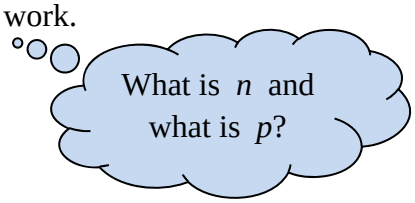
X	$P(x)$
0	
1	
2	
3	
4	
5	

n = _____

p = _____



3. Calculate the mean of X or μ_X. Round to the nearest tenth. Show your work.



Recall, mean $= np =$

4. Find the standard deviation, σ_X, for this random variable. Round to the nearest tenth. Show your work.

Recall, standard deviation $= \sqrt{np(1-p)} =$

5. Considering this dart game, what interpretation can you give to the mean and standard deviation?