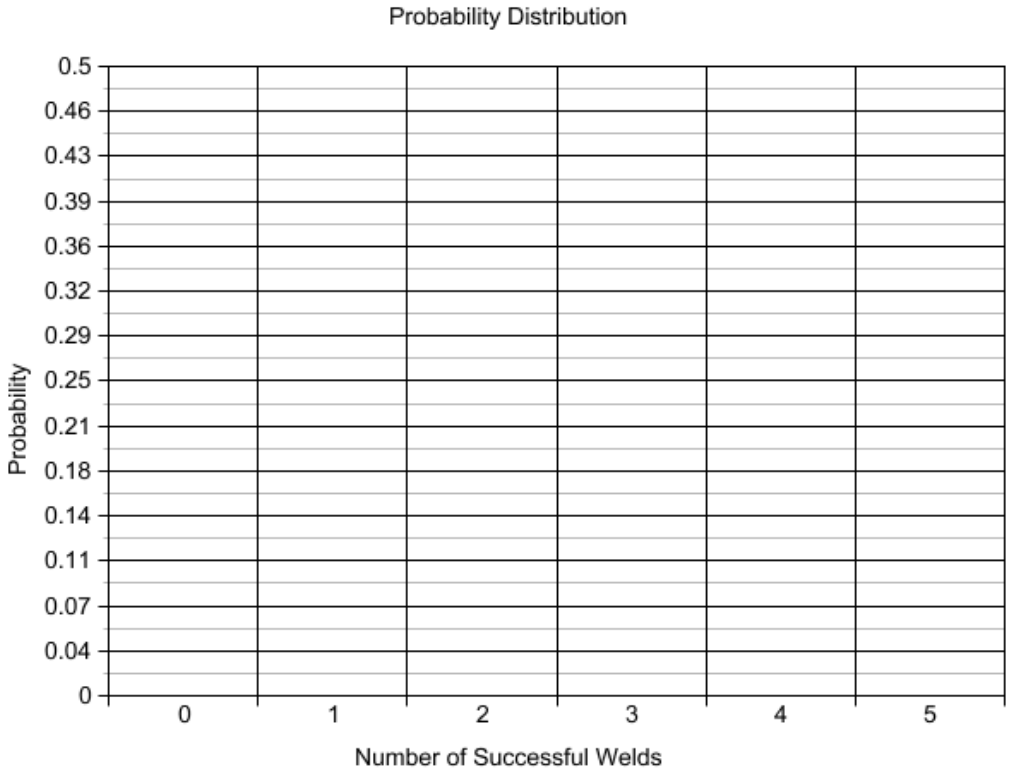
Binomial Distribution – Warm-up

Name: _____ Date: _____

Chris is working at a job where is required to repeat a very specific bead weld many times in a day. His supervisor inspects all of his work and either accepts or rejects the piece. After many week is was calculated that his welding failure rate is 30%.

a) Calculate the probability distribution for 5 of his welds. You can set up the equations and then use the online application to get the values. Also sketch the distribution. [https://bit.ly/**2H8whQP**]

x	$P(X = x)$ **(equation)**	$P(X = x)$ **(numerical value)**	**Percentage**
0			
1			
2			
3			
4			
5			



b) What is the probability of exactly 4 welds being accepted?

c) Calculate the probability that more than 3 welds are accepted.

d) Calculate the probability that fewer than 3 welds are accepted.

e) Calculate the average (expected) number of accepted welds. Draw a thick vertical line on the graph at this point. What do you notice?

f) If Chris welds 500 pieces in one week calculate the probability that at least 2 are rejected.

g) Describe how the coefficient in the equation relates to the tree diagram that can be generated for a success/failure situation of independent trials.