NAME(S)_____

Virtual Lab Activity: *From the Binomial to the Poisson*

[The Virtual Laboratory for Probability and Statistics was developed by Dr. Kyle Siegrist at UAH.]

Go to *www.math.uah.edu/stat/*

Select

14. The Poisson Process
6. Analogy with Bernoulli Trials

Read the lesson, and turn in:

1. Distribution
   Mean = _____, SD = _____

   Data
   Mean = _____ , SD = _____

2. Note: In the simulation, $\lambda = rt$, where r is the rate of occurrences over t units of time. For example, there could be r = 5 customers every t = 2 hours. This is equivalent to saying $\lambda = 10$ customers on average per period where a period is 2 hours. The text uses λt instead of rt.

   Distribution
   Mean = _____, SD = _____

   Data
   Mean = _____, SD = _____

8. With n = 30, p= .1, and 1000 runs, record

   a) The actual probability that $P(X \leq 4)$. Use the Distribution values.

   b) The relative frequency probability. Use the Data values of the simulation.

   c) The Poisson approximation. Calculate by hand letting λ = the mean of the binomial distribution.