STAT 1450, Quiz #5, Fall 2013 Name KEY

Instructions: Show all work. You may use the calculator instead of formulas, but you should indicate which functions you used and what you entered or I cannot give partial credit.

1. A certain county in New York experiences 53.1 (mean) motorcycle deaths per year.
   a. Find the mean number of motorcycle deaths per day.

$\bar{x} = \mu =$ .145 deaths per day

   b. What is the probability of having no motorcycle deaths on a particular day?

$P(0) = \dfrac{.145^0 e^{-.145}}{0!}$ = poissonpdf(.145, 0)
= .865 ≈ 86.5%

   c. What is the probability of having 2 motorcycle deaths on a particular day? Is this unusual? Why or why not? (or more)

1 − poissoncdf(.145, 1) = .009549...

0.95%

yes. this is unusual ≤ 5%

2. Find the area bounded by the indicated z-scores.
   a. Greater than z=2.22

normalcdf(2.22, E99) = .0132...

   b. Less than z= -1.5

normalcdf(−E99, −1.5) = .0668...

   c. Between z=1 and z=3

normalcdf(1, 3) = .1573...

3. Find the z-score for the indicated area.
   a. 87% of the population is less than this z-score.

z = 1.126

   b. 0.0045% is greater than this z-score.

z = 3.916...

   c. 88% is between –z and z.

1 − .88 = .12 $\quad \frac{.12}{2} = .06 \quad$ z = ± 1.55477...