ISYE 3232A Spring 2016 Quiz 6

April, 2016

Name: _____

Suppose that the number of calls to a small call center follows a Poisson process with rate 2 per hour from 8am to noon and then 5 per hour from noon to 5pm.

1. What is the name of the above arrival process?

   Non-homogeneous Poisson process.

2. Calculate the expected number of calls to the call center from 8am to 10am.

$$\mathsf{E}[N(10am) - N(8am)] = 2 \times 2 = 4.$$

3. Calculate the probability that there are 40 arrivals from 8am to 5pm.

$$\mathsf{E}[N(5pm) - N(8am)] = 2 \times 4 + 5 \times 5 = 33.$$

   Therefore,

$$\Pr(N(5pm) - N(8am) = 40) = \frac{e^{-33}33^{40}}{40!}.$$