ST501 Fundamentals of Inference – Summer 2015
Homework #3 – due Monday, 13 July
Do all of the following exercises, but only turn in those with an asterisk (*) – there are four.

From Chapter 1

• 1.24

From Chapter 2

• 2.12
• 2.20
• 2.27 * but change incidence to 1 in 10000, and give a numerical value for Pr(no cases)
• 2.28
• 2.30 *
• 2.45 * but with \( \lambda = .15 \)

Other problem:

• * Let \( Y \) be a Binomial random variable with \( n = 20 \) and \( p = .78 \). Using R, calculate

1. \( Pr(Y > 18) \)
2. \( Pr(Y > 18|Y > 10) \)
3. \( E(Y) \) How much rounding error is in the calculations? (subtract analytic value of mean)
4. \( m_Y(t) = E(e^{tY}) \) for \( t = 0, .01, .02, .03, .04, .05 \)
5. (not to be turned in) Plot \( m_Y(t) \) versus \( t \).