Math 360 Homework 9

Alex Schneider

March 16, 2015

1 4.3

1.1 5

Let X$\tilde{\text{P}}$oisson(5)

1.1.1 a.

$$P(X = 3) = 0.18$$

1.1.2 b.

$$P(X \geq 6) = 0.38$$

1.1.3 c.

$$P(2 < X < 7) = 0.83$$

1.1.4 d.

$$\sigma_X = \sqrt{5}$$

1.2 9

iv. We need to know the success probability for X.

1.3 11

$$\hat{\lambda} = 39/0.5 = 78$$

$$\sigma_{\hat{\lambda}} = \sqrt{78/1} = 8.83$$

1.4 12

1.4.1 a.

Let X$\tilde{\text{P}}$oisson(20)

$$P(X = 18) = 0.084$$

1.4.2 b.

Let X$\tilde{\text{P}}$oisson$\left(\frac{100}{43560}\right)$

$$P(X = 12) \approx 0$$

1.4.3 c.

$$\hat{\lambda} = \frac{5}{0.1} = 50 peracre$$

$$\sigma_{\hat{\lambda}} = \sqrt{50/1} = 7.07$$

1.5 13

Let X$\tilde{\text{P}}$oisson(20)

1.5.1 a.

$$P(X = 15) = 0.052$$

1.5.2 b.

Let Y$\tilde{\text{B}}$in(15,0.6)

$$P(Y = 10) = 0.19$$

1.5.3 c.

Let X$\tilde{\text{B}}$in(N,0.6)

1.5.4 d.

$$P(X = 15 and Y = 10) = 0.0099$$