5. a. $E(X) = \lambda t$ **Find $\lambda$**

$\lambda = \frac{E(X)}{t}$

$\lambda = \frac{2050}{12}$ $E(X) = 2050$

$\lambda = 170.83 \approx 171$ $t = 12$ months

Ans

b. $171 \pm 2\sqrt{\frac{171}{12}} \Rightarrow (163.5, 178.5)$

c. It should be the same range as b because 171 calls per month is approximately 2050 calls per year.

d. $N = ?$

6. a.

b. $P(X \geq 189)$ or $P(X \leq 153)$

$1 - ppois(189.5, 171) + ppois(152.5, 171)$

$P = 0.15691$

c. $171 \pm 2\sqrt{171} \Rightarrow (144.8, 197.2)$

d. I do not understand what the book was showing in it's estimation. The text was unclear.

11. a. $0.9 \times 0.8 \times 0.05 = 0.036$ [Low]

$0.7 \times 0.95 \times 0.7 = 0.49875$ [High]

Go low because the probability of getting hit is lower

b. $(1 - 0.036) \times 0.7 = 0.6748$ [Low]

$(1 - 0.49875) \times 0.7 = 0.350875$ [High]

c. Mission success is not defined

d. Mission success is not defined

e. Neither because it is proportional.