Characterizing Measurement Data

Assignment 1

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Question 1.

a)

$$\lambda = 5\frac{session}{minute} \rightarrow mean = \frac{1}{\lambda} = \frac{1minute}{5session} \times \frac{60seconds}{1minute} = 12seconds$$

b)

c)

d)

Question 2.

a)

W:

$$mean = \frac{1}{\lambda} = 12 \rightarrow \lambda = \frac{1}{12} = 0.08\overline{3}$$

X:

$$mean = n\gamma \rightarrow \gamma = \frac{12}{3} = 4$$

Y:

$$mean = e^{(\mu+\frac{\sigma^2}{2})} \rightarrow e^{(1+\frac{\sigma^2}{2})} = 12 \rightarrow ln(e^{(1+\frac{\sigma^2}{2})}) = ln(12) \rightarrow 1+\frac{\sigma^2}{2} = ln(12) \rightarrow \frac{\sigma^2}{2} = ln(12)-1 \rightarrow \sigma^2 = 2ln(12)-2$$

$$\sigma = \pm(2ln(12) - 2)$$

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sigma=2*log2(12) - 2
cat("sigma is: +-",sigma)
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## sigma is: +- 5.169925
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Z:

$$mean = \begin{cases} \infty & for \quad \alpha \leq 1 \\ \frac{\alpha * k}{\alpha - 1} & for \quad \alpha > 1 \end{cases}$$

$$\alpha = 1.25 \rightarrow mean = \frac{\alpha * k}{\alpha - 1} \rightarrow 12 = \frac{1.25k}{1.25 - 1} \rightarrow 12 = \frac{1.25k}{0.25} \rightarrow 12 = 5k \rightarrow k = \frac{12}{5} = 2.4$$

b)

c)

Question 3.

Question 4.

Question 5.

a)

b)

c)