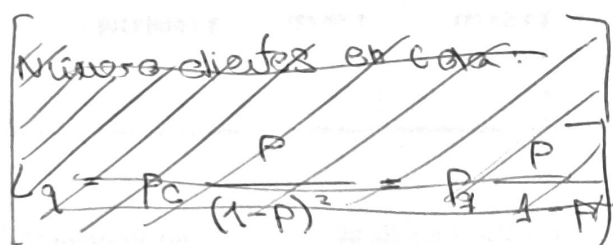


1.3 (3 puntos) Determinar la probabilidad de que haya más de tres peticiones en cola.



$$\text{Prob } n \text{ pet} = P_n = \begin{cases} P_0 \frac{(\lambda/\mu)^n}{n!} & (n < c) \\ P_0 \frac{c!}{c!} \left(\frac{\lambda}{c\mu}\right)^n & (n \geq c) \end{cases}$$

Como $c = 4 \rightarrow \mu = 1.25$

Prob n. Como c es 4, $n = 4 + 3 = 7$

$$P_0 = \left[\sum_{n=0}^{c-1} \frac{(\lambda/\mu)^n}{n!} + \frac{(\lambda/\mu)^c}{c!(1-P)} \right]^{-1} = \left[\sum_{n=0}^3 \frac{(3.2)^n}{n!} + \frac{(3.2)^4}{4! \cdot 0.2} \right]^{-1} = \frac{36.6267^{-1}}{0.0273}$$

Calcular de 8 a ∞ ($n \geq c$)

$$\sum_{n=8}^{\infty} \left(P_0 \cdot \frac{c!}{c!} \cdot P^n \right) = \sum_{n=8}^{\infty} (0.2912 \cdot (0.2)^n) = 0.2443$$

1.4 (2 puntos) Determinar el tiempo medio de espera en cola.

$$W_q = \frac{L_q}{\lambda}$$

$$L_q = P_0 \frac{P}{(1-P)^2} = P_4 \frac{0.8}{0.2^2} = 3.0237$$

$$= 2.3855$$

$$P_4 = 0.1493 = P_0$$

$$0.2912 \cdot P_4 \cdot \frac{0.8}{(0.2)^2} =$$