

Question 3

$$W - W_q = 50\%$$

$$W = 100\%$$

$$W_q = W - 50\% = 50\%$$

$$W_q = \frac{\lambda}{\mu(\mu - \lambda)}$$

$$0.5 = \frac{\lambda}{\mu(\mu - \lambda)}$$

$$W_q = \frac{L}{\lambda} - \frac{1}{\mu}$$

$$L = \frac{\lambda \mu (\frac{\lambda}{\mu})^c}{(c-1)!(c\mu - \lambda)^2} P_0 + \frac{\lambda}{\mu}$$

$$\frac{1}{\mu} + 0.5 = \frac{L}{\lambda}$$

$$\lambda = \frac{L}{\frac{1}{\mu} + 0.5} \text{ where } L = \frac{\lambda \mu (\frac{\lambda}{\mu})^c}{(c-1)!(c\mu - \lambda)^2} P_0 + \frac{\lambda}{\mu}$$