

Aufg 5

1.6) $\mu = 0,3$

$$\begin{aligned} P(X \geq 3) &= 1 - P(X \leq 2) \\ &= 1 - 1 + (1 - \mu)^2 \\ &= (1 - 0,3)^2 \\ &= 0,490 \end{aligned}$$

$$F_X(x) = 1 - (1 - \mu)^x$$

1.9)

$$P(W > 20) = P(X \leq 5) = 0,416$$

2 a)

$$\lambda = 5,5 \quad t = 1$$

$$P_X(x) = \frac{\lambda^x}{x!} e^{-\lambda}$$

$$P(X=6) = \frac{5,5^6}{6!} e^{-5,5} = 0,1571$$

2 d)

$$\lambda = 1 \quad t = 2$$

$$P(X=5) = \frac{1^5}{5!} e^{-2} = 0,0361$$

$$\begin{aligned} P(X > 5) &= 1 - P(X \leq 5) \\ &= 1 - 0,9839 \end{aligned}$$

2 f)

$$P(X \geq 1) = 1 - P(0)$$

$$P_X(x) = \frac{\mu^x}{x!} e^{-\mu}$$

$$1 - \frac{10^0}{1} e^{-10} = 1 - e^{-10}$$

4 c)

$$\mu = 3,2 \quad \sigma = 2,3$$

$$\begin{aligned} \phi\left(\frac{x-\mu}{\sigma}\right) \quad & P(X > 2,6) = 1 - P(X \leq 2,6) \\ & = 1 - \phi\left(\frac{2,6 - 3,2}{2,3}\right) \\ & = 1 - \phi(-0,2608) \\ & = 1 - 0,0047 \end{aligned}$$

