

Antwoorden tentamen MK, juni 2008

• 1a) $8e^{-4}$

b) 9.01 uur

c) 9.02 uur

d) $\frac{1}{16}$

e) e^{-60p}

• 2a) gebruik definitie; $P =$

$$\begin{pmatrix} 0 & 0 & 0 & 0 & 1 \\ 0 & 0 & 0 & 1-p & p \\ 0 & 0 & 1-p & p & 0 \\ 0 & 1-p & p & 0 & 0 \\ 1-p & p & 0 & 0 & 0 \end{pmatrix}$$

b) $P_{00}^{(2)} = 1-p$

$P_{ii}^{(2)} = p^2 + (1-p)^2, i=1,2,3$

$P_{44}^{(2)} = 1-p + p^2$

d) $\pi = \frac{1}{5-p} (1-p, 1, 1, 1, 1)$

e) $p\pi_0 = \frac{p-p^2}{5-p}$

• 3a) $\left(\frac{7}{5}\right)^5$

b) $\frac{1}{5}$

• 4a) zie Ross, p. 372-373

b) 325 uur

c) $\frac{1}{121}$

d) $336/55 \approx 6.11$

• 5a) $\frac{1}{3} P_j = \frac{1}{2} P_{j+1}, j=0,1,2$

$\frac{1}{3} P_j = P_{j+1}, j=3,4,\dots$

of b.v:

$20 P_0 = 30 P_1$

$50 P_j = 20 P_{j-1} + 30 P_{j+1}, j=1,2$

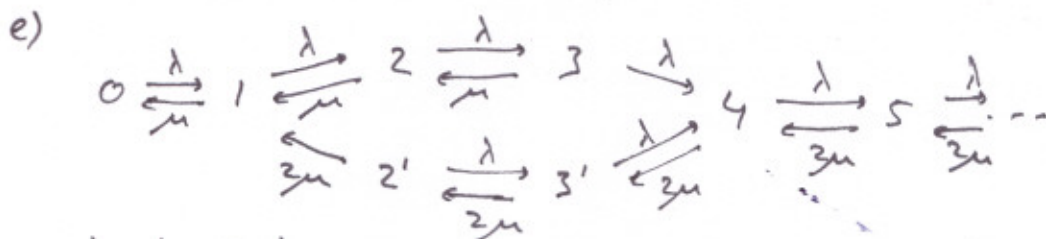
$50 P_3 = 20 P_2 + 60 P_4$

$80 P_j = 20 P_{j-1} + 60 P_{j+1}, j=4,5,\dots$

b) $1-P_0 = \frac{14}{23}$

c) $L = \frac{28}{23}, W = \frac{7}{115}$ uur = $\frac{84}{23}$ minuut

d) als $X(t) \in \{2,3\}$ is toekomst afhankelijk van # kassas op tijdstip t , en dus van verleden van $X(t)$.



$\lambda = \frac{1}{2}, \mu = \frac{1}{2}$

of

$\lambda = 20, \mu = 30$