

$$\begin{aligned} (3A) \quad 0 &= 79,78 \cdot \sqrt[3]{\frac{P}{R}} \quad \left\{ \begin{aligned} 30 &= 79,78 \cdot \sqrt[3]{\frac{P}{R}} \\ 0 &= 30 \end{aligned} \right. \\ \sqrt[3]{\frac{P}{R}} &= \frac{30}{79,78} = 0,736 \dots \\ \frac{P}{R} &= (0,736 \dots)^3 = 0,053 \dots \\ P &= 0,053 \dots \cdot R \end{aligned}$$

$$\begin{aligned} (3C) \quad S_{\text{masteller}} &= \sqrt{\frac{1}{3600} \cdot L \cdot m} \\ &= \sqrt{\frac{1}{3600} \cdot \sqrt{L} \cdot \sqrt{m}} \\ &= \frac{1}{6} \cdot L^{\frac{1}{4}} \cdot m^{\frac{1}{4}} \end{aligned}$$

$$\begin{aligned} (4A) \quad h_2 &= \left(\frac{d_1}{d_2}\right)^{0,25} \cdot h_1 \\ h_1 &= 0,6 \\ d_1 &= 1000 \end{aligned} \quad \left\{ \begin{aligned} h_2 &= \left(\frac{1000}{d_2}\right)^{0,25} \cdot 0,6 \\ h_2 &= \frac{1000^{0,25}}{d_2^{0,25}} \cdot 0,6 \\ h_2 &= 3,37 \cdot d_2^{-0,25} \end{aligned} \right.$$

$$\begin{aligned} (4C) \quad \frac{dF}{dt} &= \frac{(1+54e^{-0,24t}) \cdot 0 - 340 \cdot 54e^{-0,24t} \cdot -0,24}{(1+54e^{-0,24t})^2} \\ &= \frac{4406,4 e^{-0,24t}}{(1+54e^{-0,24t})^2} \end{aligned}$$

$$\begin{aligned} (5A) \quad \frac{du}{dt} &= \frac{(1+22,8 \cdot 0,965^t) \cdot 0 - 300 \cdot 22,8 \cdot 0,965^t \cdot \ln(0,965)}{(1+22,8 \cdot 0,965^t)^2} \\ &\approx \frac{244 \cdot 0,965^t}{(1+22,8 \cdot 0,965^t)^2} \end{aligned}$$

$$\begin{aligned} (5C) \quad e.s. &= \frac{12+57}{2} = 35 = a \\ \text{amplitude} &= 57-35 = 22 = \frac{b}{2} \\ \text{periode} &= 24 \quad \text{dus} \quad c = \frac{2\pi}{24} = \frac{1}{6}\pi \\ &\text{stijgend door e.s. bij } t=3 \\ \text{dus } f &= 35 + 22 \cdot \sin\left(\frac{1}{6}\pi(t-3)\right) \end{aligned}$$

kleine marge toegestaan!

$$\begin{aligned} (3B) \quad B &= 1 - \frac{TE}{LE+TE} \\ &= \frac{LE+TE}{LE+TE} - \frac{TE}{LE+TE} \\ &= \frac{LE}{LE+TE} \end{aligned}$$

$$\begin{aligned} (3D) \quad V &= p \cdot (s-8)(s-34) + 150 \\ s=0 &\rightarrow V = p \cdot -8 \cdot -34 + 150 \\ &= 272p + 150 \\ &= 185 \end{aligned}$$

$$\text{dus } 272p = 35$$

$$p = \frac{35}{272}$$

$$\begin{aligned} V &= \frac{35}{272} (s-8)(s-34) + 150 \\ &= \frac{35}{272} (s^2 - 42s + 272) + 150 \\ &= \frac{35}{272} s^2 - \frac{735}{136} s + 185 \\ &(\approx 0,13 s^2 - 5,405 s + 185) \end{aligned}$$

$$\begin{aligned} (4B) \quad P &= 13,33 \cdot \frac{a}{G} - 0,15u \\ 0,15u &= 13,33 \cdot \frac{a}{G} - P \end{aligned}$$

$$0,15u = \frac{13,33a}{G} - \frac{PG}{G}$$

$$0,15u = \frac{13,33a - PG}{G}$$

$$u = \frac{1}{0,15} \cdot \frac{13,33a - PG}{G}$$

$$u = \frac{6,67}{G} (13,33a - PG)$$

$$\begin{aligned} (4D) \quad B &= 1118000 \cdot r^{-0,35} \\ \lg(B) &= \lg(1118000 \cdot r^{-0,35}) \\ \lg(B) &= \lg(1118000) + \lg(r^{-0,35}) \\ \lg(B) &= 6,048 \dots - 0,35 \cdot \lg(r) \\ \text{dus } a &= 6,048 \dots \quad \text{en } b = -0,35 \end{aligned}$$

$$\begin{aligned} (5D) \quad n'(t) &= \frac{(1+12,9 \cdot 0,834^t) \cdot 0 - 2780 \cdot 12,9 \cdot 0,834^t \cdot \ln(0,834)}{(1+12,9 \cdot 0,834^t)^2} \\ &\approx \frac{6510 \cdot 0,834^t}{(1+12,9 \cdot 0,834^t)^2} \end{aligned}$$

$$\begin{aligned} (5D) \quad A &= \left(\frac{1}{v} - 1\right) \lg\left(1 - \frac{1}{v}\right) \\ &= \left(\frac{1}{v} - \frac{v}{v}\right) \lg\left(\frac{v}{v} - \frac{1}{v}\right) \\ &= \left(\frac{1-v}{v}\right) \lg\left(\frac{v-1}{v}\right) \end{aligned}$$

dus antwoord B