

$$\begin{aligned}
 & \text{> } bn := \frac{\text{int}\left(M \cdot \sin\left(\frac{n \cdot \text{Pi} \cdot x}{L}\right), x = \frac{L}{4} \dots \frac{L}{2}\right)}{\text{int}\left(\sin^2\left(\frac{n \cdot \text{Pi} \cdot x}{L}\right), x = -L \dots L\right)} \text{assuming}(L > 0, n, \text{integer}, n > 0) \\
 & \qquad \qquad \qquad bn := - \frac{M \left( \cos\left(\frac{n \pi}{2}\right) - \cos\left(\frac{n \pi}{4}\right) \right)}{n \pi} \quad (1)
 \end{aligned}$$

$$\begin{aligned}
 & \text{> } bn \\
 & \qquad \qquad \qquad - \frac{M \left( \cos\left(\frac{n \pi}{2}\right) - \cos\left(\frac{n \pi}{4}\right) \right)}{n \pi} \quad (2)
 \end{aligned}$$

$$\begin{aligned}
 & \text{> } phin := \sin\left(\frac{n \cdot \text{Pi} \cdot x}{L}\right) \\
 & \qquad \qquad \qquad phin := \sin\left(\frac{n \pi x}{L}\right) \quad (3)
 \end{aligned}$$

$$\text{> } fs := \text{subs}\left(M=1, L=10, c=1, \text{sum}\left(bn \cdot phin \cdot \cos\left(\frac{n \cdot \text{Pi} \cdot c \cdot t}{L}\right), n = 1 \dots 100\right)\right) :$$

> with(plots) :

> animate(fs, x=0..10, t=0..20) :

> curves := {seq(subs(t=2·m, fs), m=0..10)} :

> plot(curves, x=0..10, thickness=[1, 2, 3, 4, 5, 6], color=blue)

IC ii with L=10,c=1,M=1

