

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

$$\begin{aligned}
 &> an := \frac{kn \cdot L}{c \cdot n \cdot \text{Pi}} \\
 &an := - \frac{M \left(\cos\left(\frac{n \pi}{2}\right) - \cos\left(\frac{n \pi}{4}\right) \right) L}{n^2 \pi^2 c}
 \end{aligned} \tag{2}$$

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> with(plots) :
> psum := subs(M=1, L=10, c=1, sum(an*sin(n*Pi*x/L)*sin(c*n*Pi*t/L), n=1..200)) :
> animate(psum, x=0..10, t=0..20) :
> curve := {seq(subs(t=2*m, psum), m=0..10)} :
> plot(curve, x=0..10, thickness=[1, 2, 3, 4, 5, 6], color=black)

```

