

C6SUPERS

Demonstration of the superposition of waves .

(i) of four different wavelength and (ii) for the integration over the same wavelength interval.

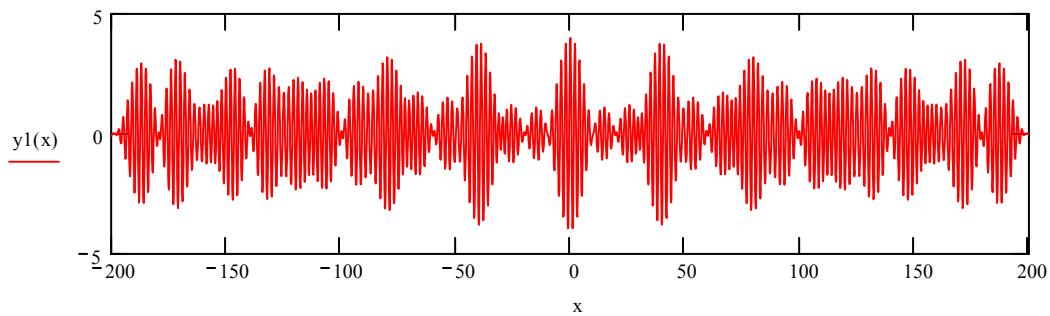
The medium wavelength is $\lambda_m = 2$

1. Summation over four waves

$$x := -200, -199.9..200 \quad \lambda_1 := 1.85 \quad \lambda_2 := 1.95 \quad \lambda_3 := 2.05 \quad \lambda_4 := 2.15$$

$$\begin{aligned} y_{11}(x) &:= \cos\left(2 \cdot \pi \cdot \frac{x}{\lambda_1}\right) & y_{13}(x) &:= \cos\left(2 \cdot \pi \cdot \frac{x}{\lambda_3}\right) \\ y_{12}(x) &:= \cos\left(2 \cdot \pi \cdot \frac{x}{\lambda_2}\right) & y_{14}(x) &:= \cos\left(2 \cdot \pi \cdot \frac{x}{\lambda_4}\right) \end{aligned}$$

$$y_1(x) := y_{11}(x) + y_{12}(x) + y_{13}(x) + y_{14}(x)$$



2. Integration over the wavelength interval for the superposition.

$$y_{41}(x) := \int_{1.85}^{2.15} \cos\left(2 \cdot \pi \cdot \frac{x}{\lambda}\right) d\lambda \quad \text{TOL} := .1$$

