$$\partial_t^2 \varphi(x,t) - c^2 \partial_x^2 \varphi(x,t) = 0$$

1. fouriertransform :

- $\partial_x^2 \cdot \varphi(x,t) \to -k^2 \cdot \hat{\varphi}(k,t)$
- $\partial_t^2 \varphi(x,t) \to \partial_t^2 \hat{\varphi}(k,t)$

$\to \partial_t^2 \hat{\varphi} + c^2 \cdot k^2 \cdot \hat{\varphi}(k,t) = 0$ (nu zijn we fourier getransformeerd)

↳ the basic formula is

$$\hat{\varphi}(k,t) = a(k) \cdot \cos(ckt) + b(k) \cdot \sin(ckt)$$

→ first condition

→ second condition

$$\frac{\partial_t \varphi(k,t)}{k \cdot c}$$

$\partial_t = -ck \cdot a \cdot \sin(0)$

$+ ck \cdot b(k) \cdot \cos(0)$

$\Leftrightarrow ck \cdot b(k) = \frac{\dots}{}$

$\to \dots$

= invullen in

↳ inverse fourier.

= 2ie maple