opg 7 $u = \sin(kx) \cdot \cos(kct)$

vi indsætter i wave form.

$$\frac{d^2u}{dt^2} = c^2 \frac{d^2u}{dx^2}$$

$$\frac{d^2}{dt^2} \sin(kx) \cdot \cos(kct) = c^2 \cdot \frac{d^2}{dx^2} \sin(kx) \cdot \cos(kct)$$

$$\frac{d}{dt} -kc \cdot \sin(kct) \cdot \sin(kx) = c^2 \cdot \frac{d}{dx} \cdot (-k \cdot \cos(kx) \cdot \cos(kct))$$

$$+k^2 \cdot c^2 \cdot \cos(kct) \cdot \sin(kx) = c^2 \cdot (-k^2 \cdot \sin(kx) \cdot \cos(kct))$$

$$k^2 \cdot c^2 \cdot \cos(kct) \cdot \sin(kx) = -k^2 c^2 \cdot \sin(kx) \cdot \cos(kct)$$