

132 - ~~(100 + 100)~~

$$\psi_1 = 4 \cdot \sin(0.2x - 3t)$$

$$\psi_2 = \frac{1}{2.5} \cdot \sin(7x + 3.5t)$$

jämför med den allmänna formen:

$$\psi = A \cdot \sin(kx \pm \omega t)$$

a) $\omega_1 = 3 \text{ rad/s}$

$$\nu_1 = \frac{\omega_1}{2\pi} = \frac{3}{2\pi} \text{ Hz} \approx 0.48 \text{ Hz}$$

$$\omega_2 = 3.5 \text{ rad/s}$$

$$\nu_2 = \frac{\omega_2}{2\pi} = \frac{3.5}{2\pi} \text{ Hz} \approx 0.56 \text{ Hz}$$

b) $k_1 = 0.2 \text{ m}^{-1}$

$$\lambda_1 = \frac{2\pi}{k_1} = 31 \text{ m}$$

$$k_2 = 7 \text{ m}^{-1}$$

$$\lambda_2 = \frac{2\pi}{k_2} = 0.90 \text{ m}$$

c) $T_1 = 1/\nu_1 = 2.1 \text{ s}$

$$T_2 = 1/\nu_2 = 1.8 \text{ s}$$

d) $A_1 = 4$

$$A_2 = 1/2.5 = 0.4$$

e) Faschnastigkeit = v Faschnastigkeit

$$v = \lambda \cdot \nu = \frac{2\pi}{k} \cdot \frac{\omega}{2\pi} = \frac{\omega}{k}$$

$$v_1 = \frac{\omega_1}{k_1} = 15 \text{ m/s}$$

$$v_2 = \frac{\omega_2}{k_2} = 0,5 \text{ m/s}$$

f)

ψ_1 : positiv x-achse

ψ_2 : negativ x-achse