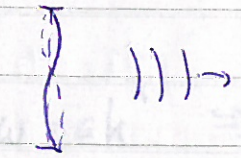
(5)

(18) Generell løsn. av $\frac{\partial^2 \xi}{\partial x^2} = \frac{1}{v^2}\frac{\partial^2 \xi}{\partial t^2}$ er

$\xi(x,t) = f(x - vt) + g(x + vt)$ (C)

(19)  Samme frekvens! (B)

(20) $v = \sqrt{\gamma k_B T / m}$ kun avh. av temperaturen for gitt gass $\Rightarrow$ ingen endring i lydhastigheten (B)

(21) $\xi(x,t) = \xi_0 \sin(kx - \omega t)$

$\Delta p = -B\, \partial\xi/\partial x = -\gamma p\, \partial\xi/\partial x$ (se formelark)

$\Rightarrow \frac{\partial \xi}{\partial t} = -\omega \xi_0 \cos(kx - \omega t)$

$\Delta p = -\gamma p k \xi_0 \cos(kx - \omega t)$

$\Rightarrow \frac{\Delta p}{\partial\xi/\partial t} = \frac{\gamma p k}{\omega} = \frac{\gamma p}{v} = \frac{\gamma p}{\sqrt{\gamma p/\rho}} = \sqrt{\gamma p \rho}$ (A)

(↑ formelark)

(22) $P = 50 \cdot 10^3$ W

$A = 4\pi r^2 = 4\pi \cdot (3000)^2$ m^2

$\Rightarrow I = \frac{P}{A} = \frac{50 \cdot 10^3}{4\pi \cdot 9 \cdot 10^6}$ W/m^2 $= 4{,}42 \cdot 10^{-4}$ W/m^2

$= 442 \cdot 10^{-6}$ W/m^2 $= 442\ \mu$W/m^2 (C)