No.
Date

Latihan 3

1) -gelombang transversal adalah gelombang yang arah getarnya tegak lurus dengan arah rambatnya membentuk gelombang sinus

-gelombang longitudinal adalah gelombang yang arah getarnya searah dengan rambatnya

2) $T = 2\,S$
$A = 20\ cm$
$v = 5\ m/s$
$t = 0,5\ s$

* $\omega = \frac{2\pi}{T} = \frac{2\pi}{2} = \pi$

$K = \frac{\omega}{v} = \frac{\pi}{5}$

$Y(x,t) = A \cos(\omega t - kx + \varphi_0)$
$= 20 \cos(\pi t - \pi/5\, x + \varphi_0)$

Pada saat $t = 0,5\ s$ ujung tali (yaitu $x = 0$) mengalami simpangan maksimum
jadi $Y(0,0) = 0,2$

$0,2 = 0,2 \cos(\pi + \varphi_0)$
$1 = \cos(\pi + \varphi_0)$

yg menghabiskan $\pi + \varphi_0 = 0$ atau $\varphi_0 = -\pi$. dengan demikian Persamaan simpangan gelombang adalah

$Y(x,t) = 0,2 \cos(0,5\pi - \pi/5\, x - \pi)$

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3) Lebah mendengung dgn taraf intensitasnya 10 dB, jika ada 100 lebah hitung taraf intensitasnya

* $T_{i100} = T_i + 10 \log n$
$= 10 + 10 \log 100$
$= 10 + 10 \log (10^2)$
$= 10 + (10.2)$
$= 10 + 20$
$= 30$ dB

4) 1 keyboard taraf intensitasnya 60 dB, Hitung jumlah keyboard apabila ti 80 dB

* $T_{in} = T_i + 10 \log (n)$
$80 = 60 + 10 \log (n)$
$20 = 10 \log (n)$
$2 = \log (n)$
$n = 10^2$
$n = 100$ unit keyboard

※ Bagian 2

1) $\gamma_1 = 250$ nm
$\theta = 40°$
$n_2 = 1,52$
$n_1 = 1$
$V_1 = 3 \times 10^8$

* $\frac{n_2}{n_1} = \frac{\gamma_1}{\gamma_2}$
$\frac{1,52}{1} = \frac{250}{\gamma_2}$
$1,52 = \frac{250}{\gamma_2}$
$\gamma_2 = 250 / 1,52$
$= 164,473$ nm

$\frac{n_2}{n_1} = \frac{V_1}{V_2}$
$\frac{1,52}{1} = \frac{3 \times 10^8}{V_2}$
$V_2 = 3 \times 10^8 / 1,52$
$= 1,97 \times 10^8$ m/s

Sistem Operasi

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$n_v \sin\theta_v = n_k \sin\theta_k$

$\sin\theta_k = \frac{n_v \sin\theta_v}{n_k}$

$= \frac{1 \cdot \sin 40}{1,52}$

$\sin\theta_k = \frac{0,64}{1,52}$

$= 0,42$

$\theta_k = 25°$

2) $\theta = 45°$

$n_{kaca} = 1,52$

$n_{udara} = 1$

$\theta_{kaca} = ?$

$* \frac{\sin\theta_u}{\sin\theta_k} = \frac{n_k}{n_v}$

$\frac{\sin 45}{\sin\theta_k} = 1,52$

$\sin\theta_k = \frac{1/2\sqrt{2}}{1,52}$

$= 0,46$

$\theta_k = 27,3°$ //

3) $\theta = 45°$

$n_k = 1,52$

$n_v = 1$

$\theta_k = ?$

$* \frac{\sin\theta_v}{\sin\theta_k} = \frac{n_k}{n_v}$

$\frac{\sin 45}{\sin\theta_k} = 1,52$

$\sin\theta_k = \frac{\sqrt{2}/2}{1,52}$

$= 0,46$

$\theta_k = 27,3°$

4) a) $n \sin\theta_1 = n_2 \sin\theta_2$

$\theta_1 = \tan^{-1}(1500\ cm)$

$\sin\theta_2 = \frac{n_1}{n_2} \times \sin\theta_1$

$= \frac{1}{1,52} \times \sin(\tan^{-1}(1500\ cm))$

$= \frac{1}{1,52} \times \sin 45^0$

$= 0,536$

$\theta_2 = \sin^{-1}(0,536)$

$= 32,5^0$ //

b) $\sin\theta = 1/1,52 = 0,657$

$\theta = \sin^{-1}(0,657)$

$\theta = 41,5^0$

- jarak horizontal
  = jarak vertikal × tan θ
  = 1500 × tan 41,5°
  = 1138 cm //

5) a) $\sin(60^0) / \sin(40^0) = n$

$\sin(40^0) = \sin(60^0) / 1,5$

$\sin(40^0) = 0,866$

sin kritis = 1/n
= 1/1,5
= 0,667

kritis = arc sin (0,667)
= 41,8° //

b) 25,8° //

estudee

Sistem Operasi