

③ Traveling Scenario III - same direction
same $\lambda + f$

$$\sin \theta_1 + \sin \theta_2 = 2 \sin\left(\frac{\theta_1 + \theta_2}{2}\right) \cos\left(\frac{\theta_1 - \theta_2}{2}\right)$$

$$.04 \sin(50x - 1000t + 1.24) + .04 \sin(50x - 1000t + .98)$$

$$.08 \sin(50x - 1000t + .86) \cos(.38)$$

$$\text{Amplitude} = .08 \cos(.38) = .0743$$

\uparrow
radians

Standing wave Scenario II opposite directions

$$.04 \sin(50x - 1000t + 1.24) + .04 \sin(50x + 1000t + .98)$$

$$= .08 \sin(50x + .86) \cos(-1000t + .38)$$

$$k = 50 = \frac{2\pi}{\lambda} \quad \lambda = \frac{2\pi}{50} = .12566 \quad \lambda = \frac{\lambda}{2} = \underline{\underline{.0628 \text{ m}}}$$