



2.  $\lambda$  read from graph  $\approx .45$  m  
 amplitude read from graph  $\approx .035$  m (A)  
 positive direction  $\Rightarrow$  use negative sign

$$k = \frac{2\pi}{\lambda} = \frac{2\pi}{.45} = \underline{\underline{13.96 \text{ m}^{-1}}} \quad (K)$$

$$v = \frac{\omega}{k} \quad \omega = vk = (2.45)(13.96) = \underline{\underline{34.2 \text{ Hz}}} \quad (\omega)$$

$$y(x, t) = A \cos(kx - \omega t + \phi) \approx .03 \text{ at } x=0, t=0$$

read from graph

$$.03 = .035 \cos(\phi)$$

$$\phi = \cos^{-1}\left(\frac{.03}{.035}\right) = \underline{\underline{.541 \text{ rad}}} \quad \phi$$



$$\left. \frac{dy}{dx} \right|_{\substack{t=0 \\ x=0}} = -kA \sin(\phi) \text{ is negative, so}$$

$\sin(\phi)$  is positive so quad I is good

$$y(x, t) = .035 \cos(13.96x - 34.2t + .541)$$