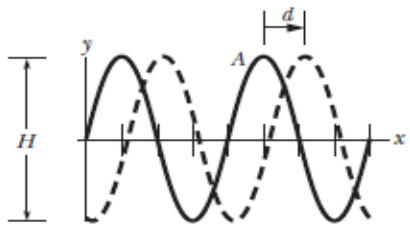
Chapter: WAVE MOTION (EE117) Worksheet# 05 (Sec:____)

1. A wave has an angular frequency of 110 rad/s and a wavelength of 1.80 m. Calculate (a) the angular wave number and (b) the speed of the wave.

2. A sinusoidal wave moving along a string is shown twice in Fig.below, as crest *A* travels in the positive direction of an *x* axis by distance *d* = 6.0 cm in 4.0 ms. The tick marks along the axis are separated by 10 cm; height *H* = 6.00 mm.
If the wave equation is of the form $y(x, t) = A \sin(kx \pm \omega t)$,
What are (a) *A* (b) *k*, (c) v, (d) ω and (e) the correct choice of sign in front of ω?



3. A particular wave is given by y = (0.200m) Sin [$(0.500m^{-1})$x – (8.20rad/s)t]
Find: (i) A (ii)k (iii) λ (iv) ω (v) frequency (vi) y at x=10.0m and t=0.5s (vii) v

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4. A sinusoidal wave train is described by the equation y=(0.25m) Sin (0.30x – 40t) where x and y are in meters and t is in seconds. Determine the (a) Amplitude (b) Angular frequency (c) angular wave number (d) wavelength (e) wave speed (f) direction of motion.

5. (a)A sinusoidal wave on a string is described by the equation y = (0.51cm) sin (kx - ωt) where k= 3.10 rad/cm and ω = 9.30 rad/s. how far does a wave crest move in 10 sec? does it move in the positive or negative x direction?
   (b) a wave is described by y = (2.00cm) sin (kx-ωt) where k = 2.11rad/m and ω= 3.62rad/s, x is in meters and time t is in seconds. Determine the amplitude, wavelength, frequency and speed of the wave?

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