SUVA SANGAM COLLEGE

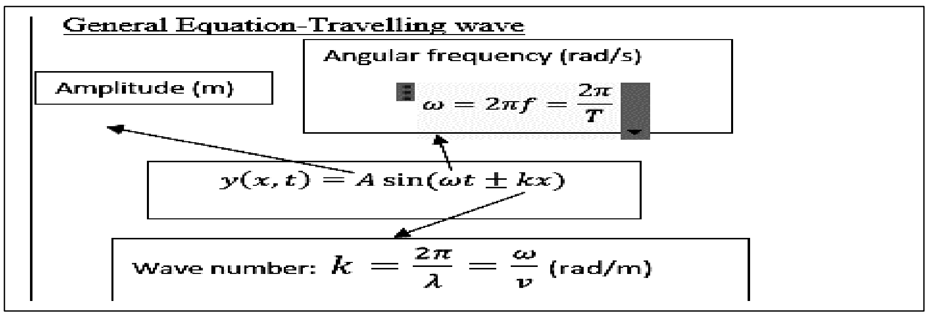
YEAR 13

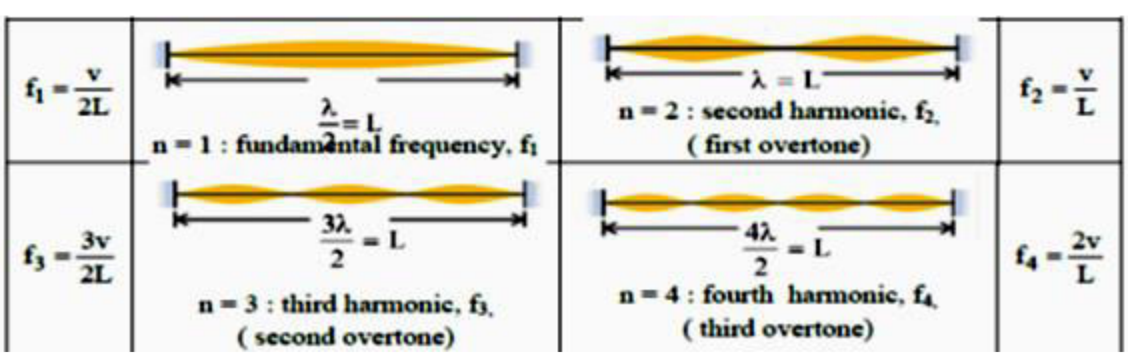
PHYSICS

WORKSHEET 9

Strand 3 P13.3	Waves
Reference from Text	Pg 66 to 85

Questions

<table>
<tr><td>No.</td><td>CONCEPT IN BRIEF:


</td></tr>
<tr><td>1.</td><td>A wave travelling through a string along the x-axis has the equation: $y = 0.03\sin(0.3x + 5t)$.
(a) State the direction of wave.
(b)
(c) Calculate the value of:
(i) Amplitude (A)
(ii) Frequency (f)
(iii) Wavelength (λ)
(iv) Velocity of wave (v)</td></tr>
<tr><td></td><td>CONCEPT IN BRIEF: Standing Waves in a string $f_n = \frac{nv}{2L}$


</td></tr>
<tr><td>2.</td><td>The diagram shows a string of length 2 m and mass 20 g attached to a tuning fork which is vibrating at a frequency of 400 Hz. The tension applied to the string causes it to vibrate in its</td></tr>
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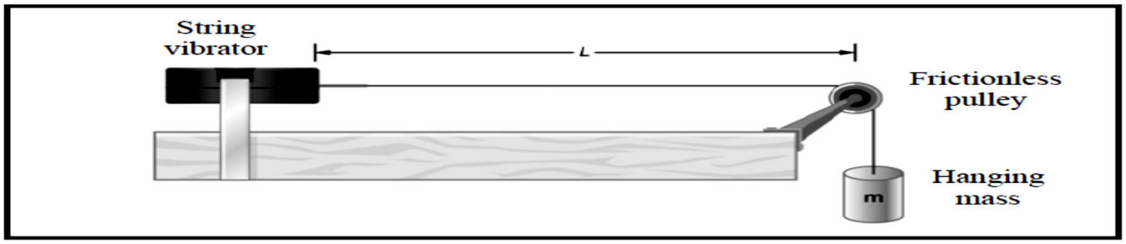
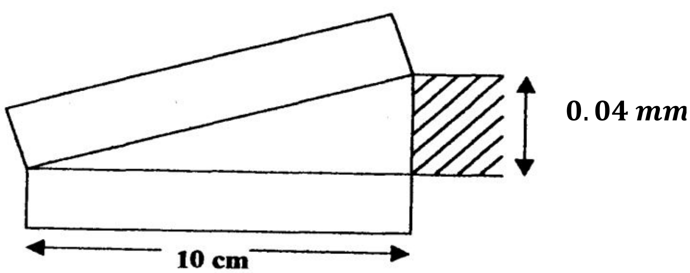
<table>
<tr><td></td><td>fourth harmonic mode.


a) Draw the pattern that would be observed for this mode.
b) Calculate the wavelength of the standing wave formed in the string.
c) Calculate the speed of the wave along the string.</td></tr>
<tr><td></td><td>CONCEPT IN BRIEF: Interference bands in reflected light can be observed by illuminating a wedge shaped film
$$\Delta x = \frac{L\lambda}{2t}$$
$\Delta x = distance\ between\ dark\ fringes$
$L = length\ of\ air\ wedge$
$t = thickness$
$\lambda = wavelength$</td></tr>
<tr><td>3.</td><td>An air wedge is formed by two 10 cm long glass slides placed in contact at one end and separated by a 0.04 mm thick paper at the other.


Find the distance between the adjacent dark fringes formed as a result of the interference of light of wavelength 700 nm incident on it.</td></tr>
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