

3
16)

a

2f

3f



b) $V = \sqrt{\frac{F_t}{m/L}} \quad V = \lambda f$

$$\lambda f = \sqrt{\frac{F_t}{m/L}}$$

c) $\lambda = \sqrt{\frac{F_t L}{m}} \frac{1}{f} \quad \lambda^2 f^2 = \frac{F_t L}{m}$

$$m = \frac{F_t L}{\lambda^2 f^2}$$

d) $F_t = \frac{\lambda^2 f^2 m}{L}$

$$\frac{m_A}{m_B} = \frac{\frac{F_t L}{\lambda_A^2 f_A^2}}{\frac{F_t L}{\lambda_B^2 f_B^2}}$$

$$\frac{m_A}{m_B} = \frac{\cancel{\lambda_B^2} f_B^2}{\cancel{\lambda_A^2} f_A^2}$$

4)

$$x = .44 \cos 8.36 t$$

$m = .53 \text{ kg}$

a)

b) $8.36 = 2\pi f$

c) $E = \frac{1}{2} m v_{\max}^2 = \frac{1}{2} m (\omega A)^2$

d) $PE = \frac{1}{2} m \omega^2 x^2$ $E_T = PE + KE$

$$x = A \sin \left(\frac{2\pi}{T} \right) t$$

$2\pi f$