EQUATIONS:

$$F_{spring} = kx$$

$$SPE = \frac{1}{2}kx^2$$

$$\omega = \sqrt{\frac{k}{m}}$$

$$\omega = 2\pi f$$

$$f = \frac{1}{T}$$

$$KE = \frac{1}{2}mv^2$$

$$\beta = 10 \text{ dB} \left(\log \frac{I}{I_0} \right)$$

$$I_0 = 1 \times 10^{-12} \text{ W/m}^2$$

speed of sound in air ≈ 340 m/s

metric prefix micro: $\mu = 10^{-6}$

$$v = \frac{\lambda}{T}$$

$$v = f\lambda$$

$$f_{obs} = f_{emitted} \left(\frac{v_{sound} \pm v_{obs}}{v_{sound} \mp v_{source}} \right)$$

$$F = q\mathbb{E}$$

$$EPE = qV$$

$$\mathbb{E} = \frac{\Delta V}{\Delta x}$$

$$\mathbb{E} = k\frac{q_s}{r^2}$$

$$F = q_1 \left(k\frac{q_2}{r^2} \right)$$

elementary electric charge $e = 1.6 \times 10^{-19}$ C   electrostatic constant $k = 9.0 \times 10^9$ N·m^2/C^2