

Summary

◉ Springs

- $F = -kx$

- $U = \frac{1}{2} k x^2$

- $\omega = \text{sqrt}(k/m)$

◉ Simple Harmonic Motion

- Occurs when have linear restoring force $F = -kx$

- $x(t) = [A] \cos(\omega t)$ or $[A] \sin(\omega t)$

- $v(t) = -[A\omega] \sin(\omega t)$ or $[A\omega] \cos(\omega t)$

- $a(t) = -[A\omega^2] \cos(\omega t)$ or $-[A\omega^2] \sin(\omega t)$