Chapter 1. Motion, Force, and Energy

distance:	$d = vt$
velocity:	$v = \frac{d}{t}$
acceleration:	$a = \frac{v}{t}$
gravitational constant:	$g = 9.8\ \frac{\mathrm{m}}{\mathrm{s}^2}$
speed of sound in 20℃ air:	$v = 344\ \frac{\mathrm{m}}{\mathrm{s}}$
Newton's second law:	$F = ma$
weight:	$w = mg$
pressure:	$p = \frac{F_\perp}{A}$
work:	$\mathcal{W} = Fd$
kinetic energy:	$\mathrm{KE} = \frac{1}{2}mv^2$
potential energy:	
object at a height:	$\mathrm{PE} = mgh$
compressed spring:	$\mathrm{PE} = \frac{1}{2}Ky^2$
pressurized gas:	$\mathrm{PE} = \frac{1V}{2P_0}p^2$
plucked string:	$\mathrm{PE} = \frac{2T}{L}y^2$
power:	$\mathcal{P} = \frac{\mathcal{W}}{t}$

Chapter 2. Vibrating Systems

spring force:	$F = -Ky$
oscillations:	$f = \frac{1}{T}$
spring-mass:	$f = \frac{1}{2\pi}\sqrt{\frac{K}{m}}$
pendulum:	$f = \frac{1}{2\pi}\sqrt{\frac{g}{l}}$
air piston:	$f = \frac{1}{2\pi}\sqrt{\frac{\gamma pA}{ml}}$
Helmholtz resonator:	$f = \frac{v}{2\pi}\sqrt{\frac{a}{Vl}}$

Chapter 3. Waves

wave velocity:	$v = f\lambda$
longitudinal waves in a solid:	$v = \sqrt{\frac{E}{\rho}}$
transverse waves in a solid wire:	$v = \sqrt{\frac{T}{\mu}}$
speed of sound in a gas:	$v = \sqrt{\frac{\gamma RT}{M}}$
for air:	$v = 20.1\sqrt{T\,\mathrm{in}^\circ\mathrm{K}}$
Kelvin temperature:	$T\,\mathrm{in}^\circ\mathrm{K} = T\,\mathrm{in}^\circ\mathrm{C} + 273^\circ$
Doppler effect:	
observer toward source:	$f' = f_s\frac{v+v_o}{v}$
source toward observer:	$f = f_s\frac{v}{v-v_s}$