

$$180^\circ = \pi \text{ rad}$$

$$90^\circ = \pi/2 \text{ rad}$$

$$v = r\omega$$

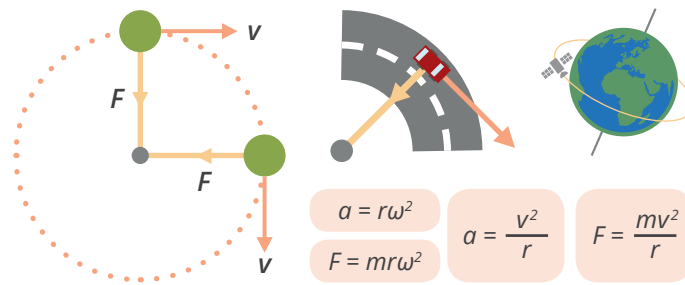
7.1

Kinematics of uniform circular motion



Circular motion

Angular speed



$$a = r\omega^2$$

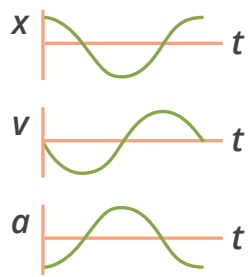
$$F = mr\omega^2$$

$$a = \frac{v^2}{r}$$

$$F = \frac{mv^2}{r}$$

7.2

Centripetal acceleration and centripetal force

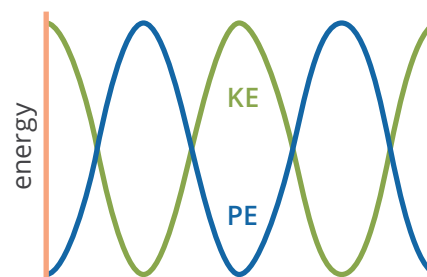


13.1

Simple harmonic oscillations



Simple harmonic motion



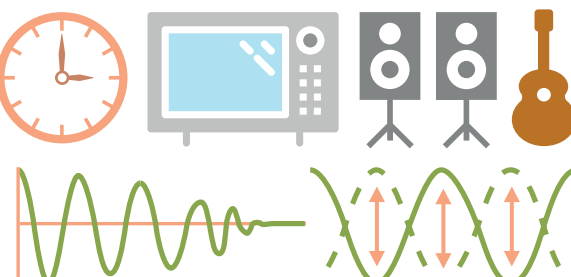
$$E_K = \frac{1}{2}m\omega^2(x_0^2 - x^2)$$

$$E_P = \frac{1}{2}m\omega^2x^2$$

$$E_{TOTAL} = \frac{1}{2}m\omega^2x_0^2$$

13.2

Energy in simple harmonic motion

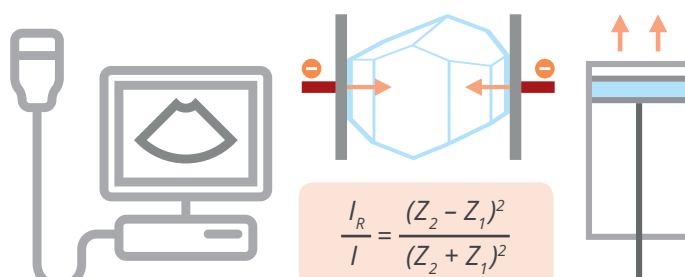


13.3

Damped and forced oscillations, resonance



Sound waves



14.6

Production and use of ultrasound in diagnosis



EARTH

THE MOON

$$g = 9.81 \text{ N kg}^{-1}$$

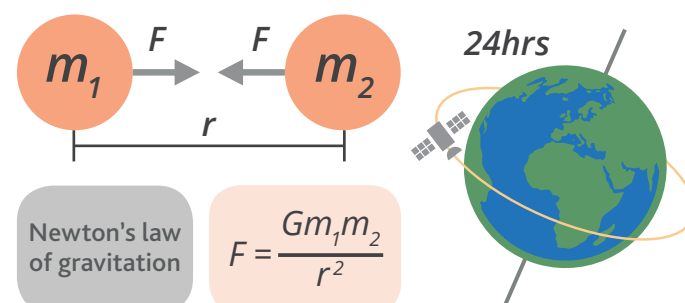
$$g = 1.7 \text{ N kg}^{-1}$$

8.1

Gravitational field

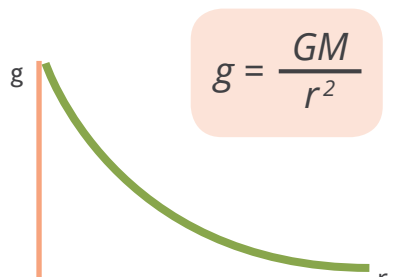
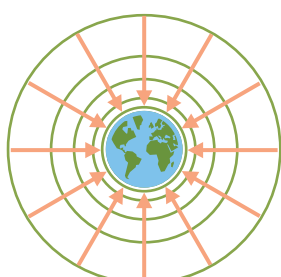


Gravitational fields



8.2

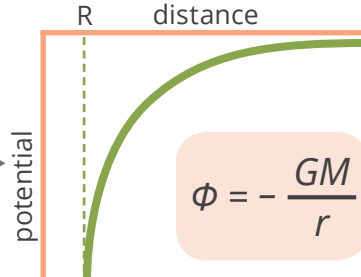
Gravitational force between point masses



$$g = \frac{GM}{r^2}$$

8.3

Gravitational field of a point mass



$$\phi = -\frac{GM}{r}$$

8.4

Gravitational potential



Satellite orbits

