General Physics I - Equation Sheet

-Linear Motion Equations -Projectile Motion Equations

**no x**  ;

**no a**  (where )

**no V**

**no t**

-Force Equations -Energy Equations

(Newton’s 2nd Law) (Work)

(Weight) (Kinetic Energy)

(Hooke’s Law) (Potential Energy)

(Circular Motion) (Spring Energy)

(Static Friction) (Thermal Energy)

(Kinetic Friction)

-Gravitation Equations -Momentum Equations

(Gravitational Force)

; ; (Inelastic)

(Circular Orbit) (Elastic)

(Escape Velocity)

(Gravitational Potential Energy)

-Rotational Motion Equations -Torque Equations

; ;

**no**  (for I-values look at p.163)

**no**  (Rotational Kinetic Energy)

**no t**

-Oscillatory Motion Equations -Thermodynamics Equations

; ; (for more info look at p.268)

(Simple Harmonic Motion) (Kelvin to Celsius)

(Celsius to Fahrenheit)

(Simple Pendulum) (Ideal Gas Law)

(Heat of Transform.)

-Fluid Motion Equations -Wave Motion Equations

(Pressure) ;

(Wave Number)

(Sinusoidal Wave)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Constant | Symbol | Value | Units | Alternative |
| Speed of Light | c | 3.00x108 |  | -------------- |
| Gravitational Constant | G | 6.67x10-11 |  | -------------- |
| Earth’s Mass | M | 5.97x1024 | kg | -------------- |
| Earth’s Radius | R | 6.37x106 | m | -------------- |
| Boltzmann’s Constant | k | 1.38x10-23 |  | -------------- |
| Ideal Gas Constant | R | 8.314 |  | 0.0821 |
| Avogadro’s Number | NA | 6.02x1023 |  | -------------- |

- Conversion Factors

**Length Time Mass Energy**

1 mi = 5280 ft 1 d = 24 hr 1 metric ton = 1000 kg 1 Cal = 1000 cal

1 ft = 12 in 1 hr = 60 min 1 lb = 0.454 kg 1 cal = 4.184 J

1 in = 2.54 cm 1 min = 60 sec 1 kg = 1000 g

**Chemistry Pressure**

1 mol = 6.02x1023 molecules 1 atm = 101.3 kPa = 101,300 Pa = 760 mmHg = 760 torr

1 g = 6.02x1023 amu