**Physics Equations 1st Semester**

**Metric Prefixes**

|  |  |  |  |
| --- | --- | --- | --- |
| Pico  | p  | 1/1,000,000,000,000  | 10-12**Newton’s Laws***a* = *Fnet / m or Fnet = ma* Fg=mgFgx-Ff = ma Fgy – FN = Fnetya=g(sin Θ – µkcos Θ)**Friction**Ff, = µk FN**Force**FN = mg**Projectile Motion**Vy= v sinΘ Vx = v cosΘVy = -gt R or x = xi + vxity = yi – (1/2)gt2t = (-2)(yf – yi) gy = yi + vyit – (1/2)gt2**Pendulum**T = 2π( √ l g |
| Nano  | n  | 1/1,000,000,000  | 10-9 |
| Micro  | µ  | 1/1,000,000  | 10-6 |
| Milli  | m  | 1/1,000  | 10-3 |
| Centi  | c  | 1/100  | 10-2 |
| Deci  | d  | 1/10  | 10-1 |
| Unit | L,m,g | 1 | 100 |
| Deka | da,dk | 10 | 101 |
| Hecto | H | 100 | 102 |
| Kilo  | k  | 1000  | 103 |
| Mega  | M  | 1,000,000  | 106 |
| Giga  | G  | 1,000,000,000  | 109 |
| Tera  | T  | 1,000,000,000,000  | 1012 |

**Trig Equations**

Sin θ = opp cos θ = adj tan θ = opp

 hyp hyp adj

**Law of cosines:**  c = $√(a2+b2-\left(2abcos∅\right))$

**Motion**

Velocity: V = Δd (df – di)

 Δt (tf – ti)

Acceleration: a = Δv (vf – vi)

 Δt (tf – ti)

**Component**

X, horizontal component: *Ax = A cos θ*

Y, vertical component: *Ay = A sin θ*

Angle: *tan θ = Ry/Rx* θ = tan -1 (opp/adj)

X, horizontal component on hill Fgx = Fgsinθ

Y, vertical component on hill Fgy = Fgcosθ

**Algebraic Addition of Vectors**

*Rx = Ax + Bx + Cx + …*

*Ry = Ay + By + Cy + …*