**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=mg  Fgx-Ff = ma Fgy – FN = Fnety  a=g(sin Θ – µkcos Θ)  **Friction**  Ff, = µk FN  **Force**  FN = mg  **Projectile Motion**  Vy= v sinΘ Vx = v cosΘ  Vy = -gt R or x = xi + vxit  y = yi – (1/2)gt2  t = (-2)(yf – yi)  g  y = 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 =

**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 + …*