

Motion

$$v = u + at$$

$$s = ut + \frac{1}{2} at^2$$

$$v^2 = u^2 + 2as$$

$$s = \frac{1}{2}(u + v)t$$

$$KE = \frac{1}{2} mv^2$$

$$GPE = mgh$$

Where g is 9.81ms^{-2} on Earth.

$$\text{Work (J)} = \text{Force (N)} \times \text{Distance (m)}$$

$$\text{Power (W)} = \text{Work (J)} / \text{Time (s)}$$

$$F = ma$$

$$F = mg$$

$$\text{Momentum, } p = mv$$

- Horizontal velocity is constant (we ignore air resistance etc.)
- Horizontal and vertical motion are independent and can be split up to make the problem easier to calculate.