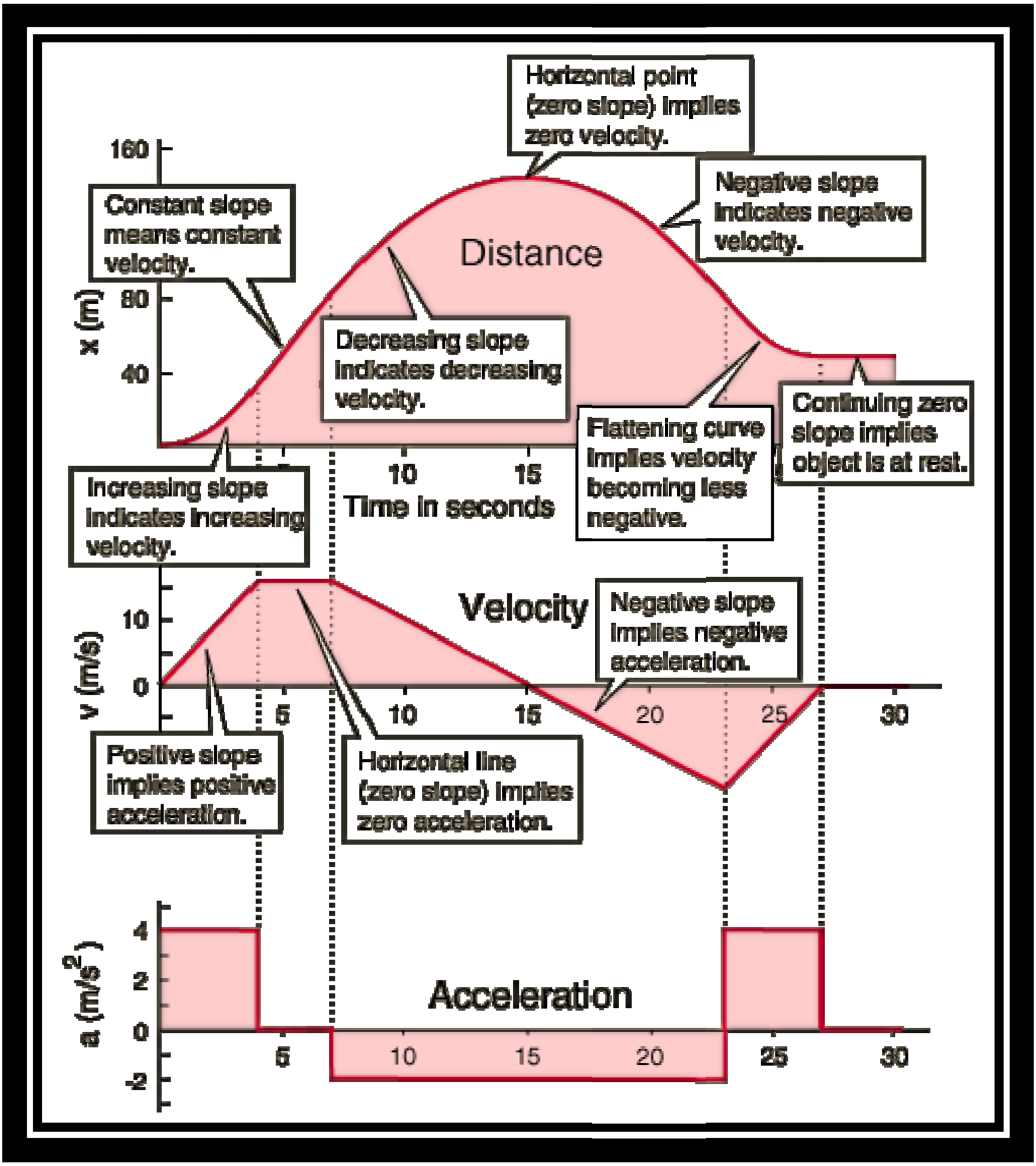
Mr. Ayman's magic physics solver

<u>Memorize the following conversions:</u>

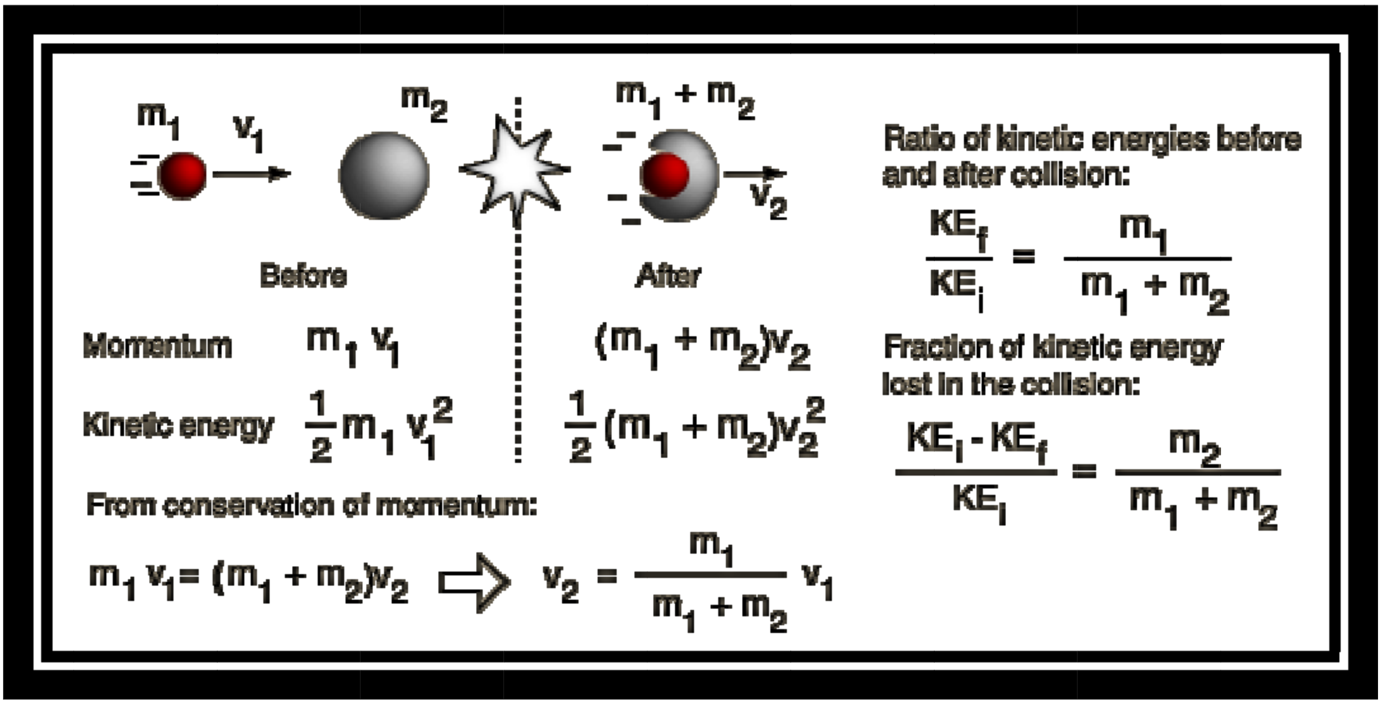
Length / time =speed (velocity) / time = acceleration (gravity) X mass = force X length = work /time = power

The Slopes of Motion Graphs

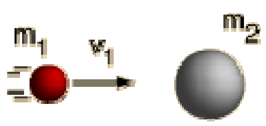


Inelastic Collisions

Perfectly [elastic collisions] are those in which no [kinetic energy] is lost in the collision. Macroscopic collisions are generally inelastic and do not conserve kinetic energy, though of course the total energy is conserved. The extreme inelastic collision is one in which the colliding objects stick together after the collision, and this case may be analyzed in general terms:



Inelastic Collision Calculation



Initial data

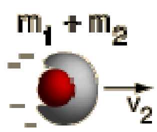
m_1 = 1 kg

m_2 = 2 kg

v_1 = 10 m/s

Momentum = 10 kg m/s

Kinetic energy = 50 J



Calculated final values

v_2 = 3.3333 m/s

Momentum = 10 kg m/s

Kinetic energy = 16.666 J

Amount of kinetic energy lost in the collision = 33.333 J.