LSO322YA Physics Test Formulae

**Formulae (ones you should know)**

You should know the acceleration of gravity on earth is 9.8 m/s2

Constant acceleration

Balls on a plane: v=at

Freefall

Constant acceleration at g

g = 9.8 m/s2

Distance traveled (d)=½at2

Other Equations Relating distance (d), velocity (v), acceleration (a), and time (t)

v=d/t

t=d/v

d=v x t

a=(vf - vi)/t

Newton’s Second Law:

Force (F)=m x a

Momentum (p)

P= m x v

Newton’s Law of Universal Gravitation

F = (G x mass1 x mass2)/d2

Where F is the force of attraction between any two objects in the universe, G is the universal gravitational constant, m1 and m2 are the masses (in kg) of the two objects and d is the distance (in m) between them.

Equation for Rest Mass:

Energy = m x c2

Where c is the speed of light 3.0 x 108 m/s2

Formulae (ones you DON’T have to memorise). It may help you to learn them.

Formulae for length contraction, time dilatation and property of mass

LMG = LGG x √[1-(v/c)]

tMG = tGG/√[1-(v/c)]

mMG = mGG/√[1-(v/c)]

These equations are taken from the text book *The Sciences: An Integrated Approach*  7th Edition by Trefil and Hazen Pg 157-159