

- 1 (a) The final velocity v , initial velocity u , acceleration a and displacement s of a body moving in a straight line at uniform acceleration is related by the equation

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

Show that this equation is homogenous.

[2]

- (b) A student measures the three dimensions of a solid cube:

width = 1.99 cm \pm 1%,
length = 1.95 cm \pm 1%,
height = 2.02 cm \pm 1%.

The manufacturer of the cube quotes the density of the material used for the cube as $(1.24 \pm 0.05) \text{ g cm}^{-3}$.

Determine the mass of the cube. Express the mass of the cube together with its uncertainty.

mass = (..... \pm ) g [4]

[Total: 6]