Exercise

Physics & Measurement

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Communitising Technology

Exercise 1

a) Is the equation $v = u + at$ is true?

b) Determine whether this equation is true or not.

$v = v_0 + \frac{1}{2}at^2$.

c) Is the equation $v^2 = 2ax$ and $t = a/v$ are dimensionally consistent?

$ans:$
$a) True, b) False, c) No$

Consider the equation of $T = 2\pi\sqrt{\dfrac{m}{k}}$, where m is the mass and T is a time, therefore dimension and SI unit of *k* can be describe as a

$$ans:$$
$$k = \frac{[M]}{[T^2]} = \frac{kg}{s^2}$$

Exercise 3

Show that the equation Power = Force x velocity is homogenous in both SI units and basic dimensions

$$ans:$$
$$[M][L^2][T^{-3}]$$
$$kgm^2s^{-3}$$

The speed of the blue car is 55 miles per hour,

calculate this speed in

   (a) m/s
   (b) km/h

A piece of concrete block has a mass of 1.35 kg and a dimension of 2 mm x 5 cm x 1.5 m. Calculate the

(a) Volume of the concrete block in

(i) cm^3 and (ii) m^3

(b) Density of the concrete block in

(i) gcm^{-3} (ii) kgm^{-3}