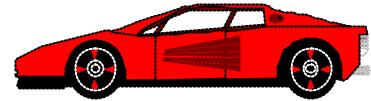


Rearrange Formulae

Worksheet

- 1 The speed of a car after t seconds is given by the formula $v = u + at$ where u is the starting speed and a is the acceleration. Rearrange this formula to make the subject (a) u (b) t



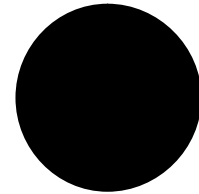
- 2 In an electrical circuit, the formula relating power, P , to the current, I , and resistance, R , is $P = I^2R$. Rearrange this formula to make the subject (a) R (b) I

- 3 If a ball is thrown up in the air at a velocity of v , the height it reaches is given by $h = \frac{v^2}{2g}$ where g is the acceleration due to gravity. Rearrange this formula to make the subject v .

- 4 A formula for converting temperatures is $C = \frac{5}{9}(F - 32)$ where C is the temperature in degrees Celsius and F is the temperature in degrees Fahrenheit. Rearrange this formula to make the subject F .

- 5 When a car accelerates steadily from a speed u to a speed v in time t , the distance it travels is given by: $s = \frac{t(u+v)}{2}$. Rearrange this formula to make the subject (a) t (b) v

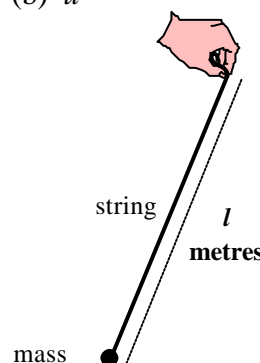
- 6 The volume of a sphere of radius r is given by the formula $V = \frac{4}{3}\pi r^3$. Rearrange this formula to make the subject r



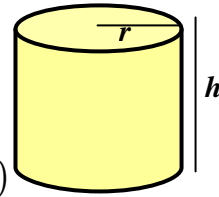
- 7 When the speed of a car increases from speed u with acceleration a over a distance s , its final speed is v where: $v^2 = u^2 + 2as$. Rearrange this formula to make the subject (a) s (b) u

- 8 When the speed of a car increases from speed u with acceleration a , the distance that it travels in time t is given by: $s = ut + \frac{1}{2}at^2$. Rearrange this formula to make the subject (a) a (b) u

- 9 The time taken for a pendulum of length l to make one full swing is $T = 2\pi\sqrt{\frac{l}{g}}$ where g is the acceleration due to gravity. Rearrange this formula to make the subject l .

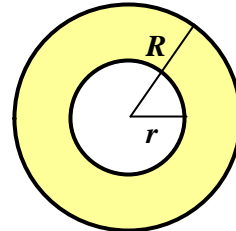


- 10 (a) The volume of a cylinder is given by the formula $V = \pi r^2 h$ where r is the radius and h is the height.
Rearrange this formula to make the subject r .



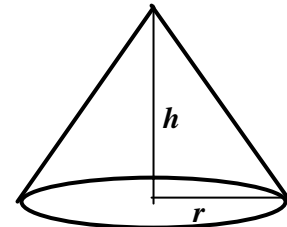
- (b) The formula for the total surface area of the cylinder is $S = 2\pi r(r + h)$
Rearrange this formula to make the subject h .

- 11 The area of a washer is given by the formula $A = \pi(R^2 - r^2)$ where r is the inner radius and R is the outer radius.
Rearrange this formula to make the subject r .



- 12 (a) The volume of a cone with radius r and height h is given by $V = \frac{1}{3}\pi r^2 h$. Rearrange this formula to make the subject r .

- (b) The formula $S = \pi r \sqrt{r^2 + h^2}$ gives the area of the curved surface of the cone. Rearrange this formula to make the subject h .



- 13 When an object of mass m , moves with velocity v at height h its total energy is $E = \frac{1}{2}mv^2 + mgh$. Rearrange this formula to make the subject (a) v (b) m .

- 14 If a principal $\pounds P$ earns simple interest at a rate of $R\%$ per annum, the total amount after T years is given by the formula $A = P + \frac{PRT}{100}$.
Rearrange this formula to make the subject P .

- 15 When an amount of money, $\pounds P$, is left in a building society account that gives $r\%$ interest per annum, the amount in the account after n years is given by the formula $A = P \left(1 + \frac{r}{100}\right)^n$.
Rearrange this formula to make the subject r .

- 16 If the monthly rate of interest on a loan is $m\%$, the annual percentage rate (APR) is given by:

$$R = 100 \left[\left(1 + \frac{m}{100}\right)^{12} - 1 \right].$$

Rearrange this formula to make the subject m .

