

will use as a scientist. You can also solve equations with a single variable using identical methods. This worksheet offer a chance to practise these skills.

Model answers to
this sheet



Rearranging Equations
study guide



1. Solve the following equations (try rearranging the equations for x):

a. $5x = 8$
 $x = \frac{8}{5}$

c. $\frac{x}{5} = 8$
 $x = (8)(5)$

e. $5 - x = 8$
 $x = -8 + 5$

a. $\frac{5-x}{2} = 8$

b. $5x + 3 = 8$
 $x = \frac{(8-3)}{5}$

d. $5x - 3 = -8$
 $x = \frac{(-8+3)}{5}$

f. $\frac{5x+3}{2} = 8$
 $x = \frac{(8 \cdot 2) - 3}{5}$

h. $\frac{1}{x} = 8$

c. $F = BQv$ for Q

$$Q = \frac{F}{Bv}$$

d. $Q = U + pV$ for p

$$p = \frac{Q - U}{V}$$

e. $\frac{V_p}{V_s} = \frac{N_p}{N_s}$ for N_s

$$N_s = \frac{V_s N_p}{V_p}$$

f. $\theta = \frac{\lambda}{d}$ for d

$$d = \frac{\lambda}{\theta}$$

g. $s = \frac{(u+v)t}{2}$ for u

$$\frac{2s}{t} - v = u$$

h. $KE = \frac{1}{2}mv^2$ for v

$$\sqrt{\frac{2KE}{m}} = v$$

i. $s = ut + \frac{1}{2}at^2$ for a

$$\frac{2(s - ut)}{t^2} = a$$

j. $\frac{pV}{T} = nR$ for T

$$T = \frac{pV}{nR}$$

k. $a^2 = b^2 + c^2$ for b

$$b = \sqrt{a^2 - c^2}$$

l. $\sin \theta = \frac{a}{b}$ for θ



$$-1 \times (at - v_f) = (-v_i) \times -1$$

$$c) d = \frac{1}{2} at^2 \quad -at + v_f = v_i$$

$$\frac{2d}{a} = at^2$$

$$\sqrt{\frac{2d}{a}} = t^2$$

$$\sqrt{\frac{2d}{a}} = t$$

$$d) 2ad = v_f^2 - v_i^2$$

$$-1 \times (2ad - v_f^2) = (-v_i^2) \times -1$$

$$\sqrt{v_f^2 - 2ad} = v_i$$

$$e) \frac{F}{m} = \frac{ma}{m}$$
$$\frac{F}{m} = a$$

$$g) \frac{1}{\text{kg} \cdot \text{m}/\text{s}^2}$$

3. a) Given
 $v = 24 \text{ m/s}$
 $t = 200 \text{ s}$

b) Given
 $v = 24 \text{ m/s}$
 $m = 1200 \text{ kg}$

c) $v_i = 6 \text{ m/s}$
 $t = 60 \text{ s}$
 $v_f = 0 \text{ m/s (stop)}$

d) $m = 0.10 \text{ kg}$

e) $F = 1000 \text{ N}$
 $m = 2000 \text{ kg}$

4. a) $v = \frac{d}{t} \times t$

b) $p = mv$
 $p = (1200)(24)$
 $= 28,800 \text{ kgm/s}$

$$vt = d$$
$$(24)(200) = d$$
$$4800 \text{ m} = d$$

d) $F = ma$
 $= (0.10)(-0.1)$
 $= 0.01 \text{ N}$

c) $a = \frac{v_f - v_i}{t}$