

Rearranging Formulae

Ex1 $V = IR$

Make R subject

$$\frac{V}{I} = R$$

$$R = \frac{V}{I}$$

Ex2 $I = \frac{PRT}{100}$

Make T subject

$$100I = PRT$$

$$\frac{100I}{PR} = T$$

$$T = \frac{100I}{PR}$$

Ex3 $P = 2(L+B)$

Make L subject

$$\frac{P}{2} = L + B$$

$$\frac{P}{2} - B = L$$

$$L = \frac{P}{2} - B$$

OR $P = 2(L+B)$

$$P = 2L + 2B$$

$$P - 2B = 2L$$

$$\frac{P - 2B}{2} = L$$

$$L = \frac{P - 2B}{2}$$

Ex4

$$V = \frac{1}{3} \pi r^2 h$$

Make r subject

$$3V = \pi r^2 h$$

$$\frac{3V}{\pi h} = r^2$$

$$\sqrt{\frac{3V}{\pi h}} = r$$

$$r = \sqrt{\frac{3V}{\pi h}}$$

Ex5

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

Make b subject

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

$$\frac{a^2}{4} = b^2 - 2$$

$$\frac{a^2}{4} + 2 = b^2$$

$$\pm \sqrt{\frac{a^2}{4} + 2} = b$$

$$b = \sqrt{\frac{a^2}{4} + 2}$$

Ex6

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

Make a subject

$$v^2 - u^2 = 2as$$

$$\frac{v^2 - u^2}{2s} = a$$

$$a = \frac{v^2 - u^2}{2s}$$

Ex7

$$T = 2\pi \sqrt{\frac{L}{g}}$$

Make L subject

$$\frac{T}{2\pi} = \sqrt{\frac{L}{g}}$$

$$\frac{T^2}{4\pi^2} = \frac{L}{g}$$

$$\frac{gT^2}{4\pi^2} = L$$

$$L = \frac{gT^2}{4\pi^2}$$

Ex 8

$$y = \frac{5+x}{1-x}$$

make x subject

$$y(1-x) = 5+x$$

$$y - yx = 5 + x$$

$$y - 5 = x + yx$$

$$y - 5 = x(1+y)$$

$$\frac{y-5}{1+y} = x$$

$$x = \frac{y-5}{1+y}$$

Exercise

1)
$$p = \frac{2q+3}{5-q}$$

make q subject

$$p(5-q) = 2q+3$$

$$5p - pq = 2q+3$$

$$5p - 3 = 2q + pq$$

$$5p - 3 = q(2 + p)$$

$$\frac{5p - 3}{2 + p} = q$$

$$q = \frac{5p - 3}{2 + p}$$

EXERCISE 5N



1 $T = 3k$

Make k the subject.

2 $X = y - 1$

Express y in terms of X .

3 $Q = \frac{p}{3}$

Express p in terms of Q .

4 $A = 4r + 9$

Make r the subject.

5 $W = 3n - 1$

Make n the subject.

6 $p = m + t$

a Make m the subject.

b Make t the subject.

7 $g = \frac{m}{v}$

Make m the subject.

8 $t = m^2$

Make m the subject.

9 $C = 2\pi r$

Make r the subject.

10 $A = bh$

Make b the subject.

11 $P = 2l + 2w$

Make l the subject.

12 $m = p^2 + 2$

Make p the subject.

13 $v = u + at$

a Make a the subject.

b Make t the subject.

14 $A = \frac{1}{4} \pi d^2$

Make d the subject.

15 $W = 3n + t$

a Make n the subject.

b Express t in terms of n and W .

16 $x = 5y - w$

a Make y the subject.

b Express w in terms of x and y .

17 $k = 2p^2$

Make p the subject.

18 $v = u^2 - t$

a Make t the subject.

b Make u the subject.

19 $k = m + n^2$

a Make m the subject.

b Make n the subject.

20 $T = 5r^2$

Make r the subject.

21 $K = 5n^2 + w$

a Make w the subject.

b Make n the subject.

HINTS AND TIPS

Remember about inverse operations, and the rule "change sides, change signs".

$$1) \quad T = 3k$$

$$\frac{T}{3} = k$$

$$k = \frac{T}{3}$$

$$2) \quad X = y - 1$$

$$X + 1 = y$$

$$y = X + 1$$

$$3) \quad Q = \frac{P}{3}$$

$$3Q = P$$

$$P = 3Q$$

$$4) \quad A = 4r + 9$$

$$A - 9 = 4r$$

$$\frac{A - 9}{4} = r$$

$$r = \frac{A - 9}{4}$$

$$5) \quad W = 3n - 1$$

$$W + 1 = 3n$$

$$\frac{W + 1}{3} = n$$

$$n = \frac{W + 1}{3}$$

$$6) \quad p = m + t$$

$$p - t = m$$

$$m = p - t$$

$$7) \quad g = \frac{m}{v}$$

$$gv = m$$

$$m = gv$$

$$8) \quad t = m^2$$

$$\pm\sqrt{t} = m$$

$$m = \pm\sqrt{t}$$

$$9) \quad C = 2\pi r$$

$$\frac{C}{2\pi} = r$$

$$r = \frac{C}{2\pi}$$

$$10) \quad A = bh$$

$$\frac{A}{h} = b$$

$$b = \frac{A}{h}$$

$$11) \quad P = 2L + 2W$$

$$P - 2W = 2L$$

$$\frac{P - 2W}{2} = L$$

$$L = \frac{P - 2W}{2}$$

$$12) \quad m = p^2 + 2$$

$$m - 2 = p^2$$

$$\pm\sqrt{m - 2} = p$$

$$p = \pm\sqrt{m - 2}$$

$$13) \quad V = u + at$$

$$v - u = at$$

$$\frac{v - u}{t} = a$$

$$a = \frac{v - u}{t}$$

$$14) \quad A = \frac{1}{4}\pi d^2$$

$$4A = \pi d^2$$

$$\frac{4A}{\pi} = d^2$$

$$\pm\sqrt{\frac{4A}{\pi}} = d$$

$$d = \pm\sqrt{\frac{4A}{\pi}}$$

$$15) \quad W = 3n + t$$

$$W - t = 3n$$

$$\frac{W - t}{3} = n$$

$$n = \frac{W - t}{3}$$