



Formulas

Often formulas are expressed in terms of other quantities, and it is often desirable to solve for a specific quantity in a formula. This worksheet will give you more practice in doing this.

EXERCISES

A. Given the following formulas, solve for the quantities indicated:

1) $A = bh$ a) b b) h

2) $D = m/V$ a) m b) V

3) $A = \pi r^2$ a) r

4) $P = 2\ell + 2w$ a) ℓ b) w

5) $A = \frac{1}{2}bh$ a) b b) h

6) $A + B + C = 180$ a) A b) B c) C

7) $V = \mathcal{E} - Ir$ a) \mathcal{E} b) I c) r



8) $f = c/\lambda$ a) c b) λ

9) $d = \frac{1}{2}at^2$ a) a b) t

10) $A = \frac{1}{2}h(a + b)$ a) h b) a c) b

11) $\frac{V_1}{V_2} = \frac{N_1}{N_2}$ a) V_1 b) V_2 c) N_1 d) N_2

12) $v = v_0 + at$ a) v_0 b) t c) a

13) $F = \frac{Gm_1m_2}{r^2}$ a) m_1 b) r

14) $E = mc^2$ a) m b) c

15) $T_K = T_C + 273$ a) T_C

16) $\Delta L = \alpha L(T - T_0)$ a) L b) T c) T_0



17) $\lambda = 4(L + 0.4d)$ a) L b) d

18) $P = I^2R$ a) I b) R

SOLUTIONS

Other expressions for these answers may be possible.

A. (1)a) $b = \frac{A}{h}$ b) $h = \frac{A}{b}$ (2)a) $m = DV$ b) $V = \frac{m}{D}$ (3)a) $\sqrt{\frac{A}{\pi}}$ (4)a) $\frac{P}{2} - w$
 b) $\frac{P}{2} - \ell$ (5)a) $b = \frac{2A}{h}$ b) $h = \frac{2A}{b}$ (6)a) $180 - B - C$ b) $180 - A - C$
 c) $180 - A - B$ (7)a) $\mathcal{E} = V + Ir$ b) $I = \mathcal{E} - V/r$ c) $r = \mathcal{E} - V/I$ (8)a) $c = f\lambda$ b) $\lambda = \frac{c}{f}$
 (9)a) $a = \frac{2d}{t^2}$ b) $\sqrt{\frac{2d}{a}}$ (10)a) $h = \frac{2A}{a+b}$ b) $a = \frac{2A}{h} - b$ c) $a = \frac{2A}{h} - a$
 (11)a) $V_1 = \frac{N_1V_2}{N_2}$ b) $V_2 = \frac{N_2V_1}{N_1}$ a) $N_1 = \frac{V_1N_2}{V_2}$ b) $N_2 = \frac{V_2N_1}{V_1}$ (12)a) $v_0 = v - at$
 b) $t = \frac{v - v_0}{a}$ c) $a = \frac{v - v_0}{t}$ (13)a) $m_1 = \frac{Fr^2}{Gm_2}$ b) $r = \sqrt{\frac{Gm_1m_2}{F}}$ (14)a) $m = \frac{E}{c^2}$
 b) $c = \sqrt{\frac{E}{m}}$ (15)a) $T_c = T_k - 273$ (16)a) $L = \frac{\Delta L}{\alpha(T - T_0)}$ b) $T = \frac{\Delta L}{\alpha L} + T_0$
 c) $T_0 = T - \frac{\Delta L}{\alpha L}$ (17)a) $L = \lambda/4 - 0.4d$ b) $d = \lambda - 4L/1.6$ (18)a) $I = \sqrt{P/R}$ b) $R = P/I^2$

