

Algebra 1 - Literal Equations and Formulas - Answer Key

Common Core A-CED.A.4, A-REI.A.1 · maths-pdf.fr/en/

This answer key explains every problem on the literal equations worksheet. Final answers are in bold, and the lines above them show how each result was found. Use it to correct mistakes and to look for patterns in the errors you make most often.

Algebra 1 · Common Core State Standards: **A-CED.A.4, A-REI.A.1**

Exercise 1 - Distance formula

Divide both sides by r .

$$t = \frac{d}{r}$$

Exercise 2 - Perimeter of a square

Divide both sides by 4.

$$s = \frac{P}{4}$$

Exercise 3 - Area of a rectangle

Divide both sides by l .

$$w = \frac{A}{l}$$

Exercise 4 - Circumference

Divide both sides by 2π .

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

Exercise 5 - Solve for b

Subtract mx from both sides.

$$b = y - mx$$

Exercise 6 - Solve for x

Subtract b : $y - b = mx$.

Divide by m .

$$x = \frac{y-b}{m}$$

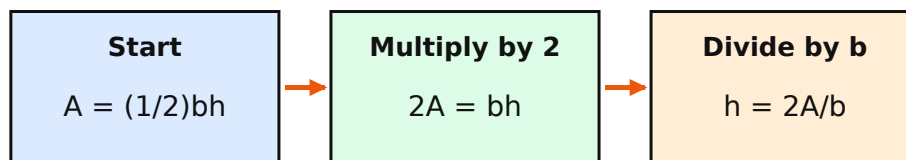
Exercise 7 - Perimeter of a rectangle

Subtract $2w$: $P - 2w = 2l$.

Divide by 2.

$$l = \frac{P-2w}{2}$$

Exercise 8 - Area of a triangle



Isolating h.

Multiply both sides by 2: $2A = bh$.

Divide by b .

$$h = \frac{2A}{b}$$

Exercise 9 - Temperature formula

Subtract 32: $F - 32 = \frac{9}{5}C$.

Multiply by $\frac{5}{9}$.

$$C = \frac{5}{9}(F - 32)$$

Exercise 10 - Volume of a prism

Divide both sides by lw .

$$h = \frac{V}{lw}$$

Exercise 11 - General linear form

Subtract b : $ax = c - b$.

Divide by a .

$$x = \frac{c-b}{a}$$

Exercise 12 - Standard form to slope-intercept

Subtract $3x$: $2y = 12 - 3x$.

Divide every term by 2.

$$y = 6 - \frac{3}{2}x$$

Exercise 13 - Variable on both sides

Subtract cx and b : $ax - cx = d - b$.

Factor: $x(a - c) = d - b$.

Divide by $a - c$.

$$x = \frac{d-b}{a-c}$$

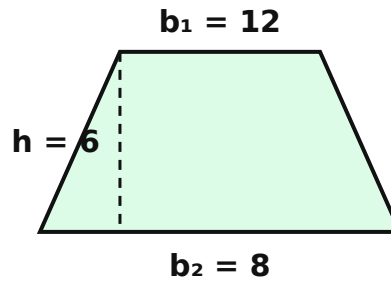
Exercise 14 - Surface area of a cylinder

Subtract $2\pi r^2$: $S - 2\pi r^2 = 2\pi rh$.

Divide by $2\pi r$.

$$h = \frac{S - 2\pi r^2}{2\pi r}$$

Exercise 15 - Trapezoid



Top base 12 gives area 60.

Multiply by 2: $2A = (b_1 + b_2)h$. Divide by h : $\frac{2A}{h} = b_1 + b_2$.

Subtract b_2 : $b_1 = \frac{2A}{h} - b_2$.

Substitute: $b_1 = \frac{2(60)}{6} - 8 = 20 - 8 = 12$.

$b_1 = \frac{2A}{h} - b_2$; $b_1 = 12$

Exercise 16 - Simple interest

Divide by Pr : $t = \frac{I}{Pr}$.

Substitute: $t = \frac{180}{1500(0.04)} = \frac{180}{60} = 3$.

$t = \frac{I}{Pr}$; **3 years**

Exercise 17 - Convert a temperature

Substitute: $C = \frac{5}{9}(77 - 32) = \frac{5}{9}(45)$.

Multiply: $C = 25$.

25°C

Exercise 18 - Fence length

$$l = 14$$

$$w = 9$$

$$P = 46$$

Length 14 feet.

$$l = \frac{P-2w}{2}.$$

$$\text{Substitute: } l = \frac{46-2(9)}{2} = \frac{28}{2} = 14.$$

$$l = \frac{P-2w}{2}; \mathbf{14 \text{ feet}}$$

Exercise 19 - Road trip speed

$$\text{Divide by } t: r = \frac{d}{t}.$$

$$\text{Substitute: } r = \frac{330}{5.5} = 60.$$

$$r = \frac{d}{t}; \mathbf{60 \text{ mph}}$$

Exercise 20 - Slope formula

$$\text{Multiply by } x_2 - x_1: m(x_2 - x_1) = y_2 - y_1.$$

$$\text{Add } y_1: y_2 = m(x_2 - x_1) + y_1.$$

$$\text{Substitute: } y_2 = 3(5-1) + 2 = 14.$$

$$y_2 = m(x_2 - x_1) + y_1; y_2 = 14$$

Exercise 21 - Soup can

$$\text{Divide by } \pi r^2: h = \frac{V}{\pi r^2}.$$

$$\text{Substitute: } h = \frac{90\pi}{\pi(3)^2} = \frac{90\pi}{9\pi} = 10.$$

$$h = \frac{V}{\pi r^2}; \mathbf{10 \text{ inches}}$$