Practice Problems: Algebraic Equations (Variables Only)
Please rewrite the equations solving for the given variable listing the inverse operation that you used. Think of these as puzzles where you have to rearrange the letters to solve.

Examples:

a + b = c
Solve for *a*.

Answer: Since we want to isolate the variable ***a*** we need to move the ***b***. We do this by using our knowledge of inverse operations. The additive inverse of ***+ b*** is ***-b*** so we subtract ***b*** from both sides of the equal sign, which leaves us with ***a = c - b***

bc - a = d
Solve for *b*

Answer: This is a type step equation. We must remember to perform our steps using the reverse order of operations. When solving a problem we would normally do multiplication and division first however since we are reversing our order we must first get rid of the - a. The additive inverse of -a is +a so we add a to both sides of the equal sign giving us
bc - a + a = d + a Which leaves us with ***bc = d + a***. Now we have to get rid of the c. The multiplicative inverse of multiply by c is dividing by c leaving us with-

$$\frac{bc}{c} = \frac{d+a}{c}$$

The c will cancel on the left leaving us with

$$b = \frac{d+a}{c}$$

Problems

1. $V = IR$ Solve for I
2. $\frac{a}{b} = c$ Solve for a
3. $a + b + c = f$ Solve for a

4. $\boldsymbol{x - y = z}$ Solve for $\boldsymbol{x}$.

5. $\boldsymbol{x + y = z}$ Solve for $\boldsymbol{y}$

6. $\boldsymbol{F = ma}$ Force equals mass times acceleration. How might you determine the mass $\boldsymbol{m}$ if you were given the force and acceleration?

7. $\boldsymbol{A = lw}$ Area of a rectangle equals the length times the width. How might you determine the length $\boldsymbol{l}$ if you are given the area and the width?

8. $\boldsymbol{W = fd}$ The amount of work done on an object equals the amount of forced used multiplied by the distance the object was moved. If you knew the amount of work and the amount of force, how might you determine the distance?

9. $\boldsymbol{\frac{a}{b} + c = f}$ Solve for $\boldsymbol{a}$

10. $\boldsymbol{xy - d = m}$ Solve for $\boldsymbol{y}$