

3.4 – “Solving Equations with Literal Coefficients”

When we have equations that have more than one variable in it, we can use our rules for solving equations to solve for the indicated variable.

Ex. 1) Solve for the indicated variable.

a) $A = lw$; solve for w .

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

b) $I = Prt$; solve for P .

$$P = \frac{I}{rt}$$

c) $ax - b = c$; solve for x .

$$\begin{aligned} ax &= c + b \\ x &= \frac{c + b}{a} \end{aligned}$$

d) $3x - y = 4$; solve for y .

$$3x - 4 = y$$

e) $P = 2(l + w)$; solve for w .

$$\begin{aligned} \frac{P}{2} &= l + w \\ w &= \frac{P}{2} - l \end{aligned}$$

f) $A = \frac{1}{2}bh$; solve for h .

$$\begin{aligned} 2A &= bh \\ h &= \frac{2A}{b} \end{aligned}$$

g) $A = \frac{h}{2}(a + b)$; solve for a

$$2A = h(a + b)$$

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

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

3.5 – “Translating ENGLISH into MATH”

How do you translate English terms into math expressions?

Addition	Subtraction	Multiplication	Division	Equals
sum and	take away less	times	into	is

**** NOTE:** Be careful with the **ORDER of the expression** when **SUBTRACTING** or **DIVISION**. It is often a good idea to check by substituting with numbers to check your work.

Ex. 1) Write the following phrases as mathematical expressions or equations.
Use x as the variable where a number is unknown.

a) A number multiplied by 6.

$$6x$$

b) Five less than a number

$$x - 5$$

c) Four times the sum of a number and 3

$$4(x + 3)$$

d) Four times the difference of a number and 4

$$4(x - 4)$$

e) Twice a number plus three is eleven.

$$2x + 3 = 11$$

f) A quarter of a number equals eight.

$$\frac{x}{4} = 8$$

g) Three times a number is equivalent to twice that number increased by two.

$$3x = 2x + 2$$