Algebra

M4A1 Students will represent and interpret mathematical relationships in quantitative expressions.

a. Understand and apply patterns and rules to describe relationships and solve problems.
b. Represent unknowns using symbols, such as □ and Δ.
c. Write and evaluate mathematical expressions using symbols and different values.

Expression: part of a number sentence that has numbers and operation signs, but it contains no equal sign.
Variable: a letter or symbol that represents a number you don't know.
Parentheses: tell which operation to do first.
Order of Operations: a set of rules to use when solving expressions with one than one operation.

First, solve what is in parentheses.
Second, multiply and divide from left to right
Third, add and subtract from left to right

example: 5 x (**23 – 18**) + 7 [parentheses first]
5 x **5** + 7 [multiplication second]
25 + 7 [addition last]
32

Writing an expression for a problem:

Sue has 12 flowers. Mary gave her three more. Sue gave her mom five flowers.
expression: (12 + 3) – 5 [written horizontally]

Martin has 14 erasers. He gives his brother some. His teacher gave him two more.
expression: (14 – x) + 2

Solving for a variable in a problem

Addition Problems		Subtraction Problems	
Δ + 23 = 54	22 + Δ = 56	Δ - 23 = 54	56 - Δ = 22
54 – 23 = 31	56 – 22 = 34	54 + 23 = 77	56 – 22 = 34
Δ = 31	Δ = 34	Δ = 77	Δ = 34
Multiplication Problems		**Division Problems**	
Δ x 5 = 65	7 x Δ = 98	65 ÷ Δ = 5	98 ÷ Δ = 14
65 ÷ 5 = 13	98 ÷ 7 = 14	65 ÷ 5 = 13	14 x 7 = 98
Δ = 13	Δ = 14	Δ = 13	Δ = 98