
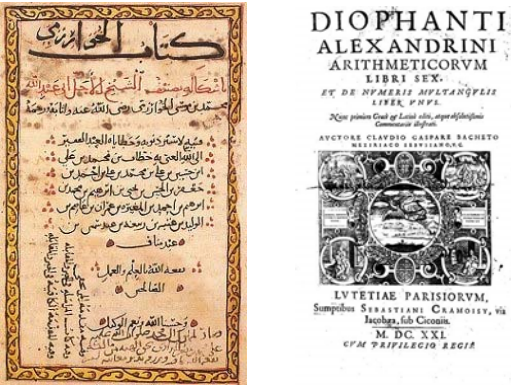


MasterMath

Algebra
SOLVING EXPRESSIONS WITH ADDITION AND SUBTRACTION





DIOPHANTI ALEXANDRINI ARITHMETICORVM LIBRI SEX. ET DE NUMERIS MULTAQUE LIBER VNI.

AVCTORE CLAVDIO GASPARO BACHETO REPERTO REVISORUM.

LYTETIAE PARIORIUM, Sumptibus SEBASTIANI CRAMOISY, Via Jacobae, sub Circulo.

M. DC. XXI. CPM TRIFILEGIO REGIA

SOLVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

Variable: A variable represents an unknown number in an expression. It's what we want to solve for. We can use any letter or letters as a variable:
a, b, c, x, y, z, AB.

$x + 3 = 5$

$y - 2 = 7$

SOLVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

Example: You get a job on a farm, and they agree to pay you \$2.00 for each bushel of oranges that you pick. We'll call the total number of bushels you picked "B". At the end of the day, they pay you \$30. How many bushels did you pick?

$$\$2 \times B = \$30$$

$$\$2 \times \text{number of bushels picked} = \$30$$

IVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

Rules to Solve Algebraic Expressions

- 1. If you do the same thing to both sides of an equation, it's still an equality. The two equations are called *Equivalent Equations*.

$$5 = 5, \quad 5 + 1 = 5 + 1$$
$$x = 5, \quad x - 2 = 5 - 2$$

- 2. To solve for "x", isolate "x", making it the only thing on one side of the expression.

$$x + 2 = 5$$
$$x = 5 - 2$$

IVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

Rules to Solve Algebraic Expressions

- 3. To remove a number from one side of an equation, do the Inverse Operation (the opposite) to both sides of the equation.

$$x - 3 = 9$$
$$x \quad \color{red}{-3} \quad \color{red}{+3} = 9 \quad \color{red}{+3}$$

or

$$x + 6 = 11$$
$$\underline{-6 \quad -6}$$
$$x = 5$$

IVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

Example:

$$x - 16 = 4$$

$$\begin{array}{r}
 x - 16 = 4 \\
 +16 \quad +16 \\
 \hline
 x = 20
 \end{array}$$

SOLVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

You try it!

$$8 = x + 3$$

SOLVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

You try it!

$$8 = x + 3$$

$$\begin{array}{r}
 8 = x + 3 \\
 -3 \quad -3 \\
 \hline
 5 = x
 \end{array}$$

SOLVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

You try it!

$$15 + 3 = y + 2$$

MOVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

You try it!

$$15 + 3 = y + 2$$

$$15 + 3 = y + 2$$
$$15 + 3 - 2 = y + 2 - 2$$
$$16 = y$$

MOVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

You try it!

$$z - 9 = 12$$

MOVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

You try it!

$$z - 9 = 12$$

$$\begin{array}{r}
 z - 9 = 12 \\
 + 9 \quad + 9 \\
 \hline
 z = 21
 \end{array}$$

IVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

You try it!

***Write as an algebraic expression, and solve:
a number minus six equals
twelve***

IVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

You try it!

***Write as an algebraic expression, and solve:
a number minus six equals
twelve***

$$\mathbf{x - 6 = 12}$$

IVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

You try it!

$$9 = 3 + x$$

SOLVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

You try it!

$$9 = 3 + x$$

$$9 = 3 + x$$

$$9 - 3 = 3 + x - 3$$

$$6 = x$$

SOLVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION

You try it!

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SOLVING ALGEBRAIC EXPRESSIONS WITH ADDITION AND SUBTRACTION
