

Properties of Real Numbers

Use operation and order symbols to write mathematical sentences. Identify and use the commutative, associative and distributive properties. Be able to identify identity numbers and inverses.

Aug 18-9:47 AM

Write the following phrases as algebraic expressions:

The sum of a number and 13

$$13 + n$$

The quotient of 27 and a number

$$\frac{27}{n}$$

first term goes on top

* The product of 5 and the difference of 9 and a number

$$5(9 - n)$$

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Write each sentence as an equation:

The difference of x and 7 is 45.

$$x - 7 = 45$$

The product of 5 and x amounts to the sum of x and 14.

$$5x = x + 14$$

The quotient of y and 23 is the same as 20 subtracted by y.

$$\frac{y}{23} = 20 - y$$

Three times the sum of 4 and y yields 24.

$$3(4 + y) = 24$$

Aug 18-9:53 AM

We can use other symbols to represent numbers and expressions that have a relationship other than "is equal to"

What do the following symbols mean:

less
 ↖
 ↗
 small
 end
 (smaller)
 *

Symbol	Meaning
\neq	"is not equal to"
$<$	"less than"
$>$	"greater than"
\leq	"less than or equal to"
\geq	"greater than or equal to"

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Write each sentence using mathematical symbols.

The difference of 7 and x is less than or equal to 21

$$7 - x \leq 21$$

Nine is not equal to x plus y.

$$9 \neq x + y$$

Thirty is greater than the sum of 9 and x squared.

$$30 > 9 + x^2$$

4) The product of m and 5 is greater than or equal to 16.

$$m \cdot 5 \geq 16$$

Aug 18-10:01 AM

Write the additive inverse (*opposite*) of each.

a. 10

$$-10$$

b. $-\frac{2}{3}$

$$+\frac{2}{3}$$

c. -81

$$81$$

The sum of any # and its opposite is 0

Write the multiplicative inverse (*reciprocal*) of each.

a. 19

$$\frac{1}{19}$$

b. $\frac{4}{9}$

$$\frac{9}{4}$$

c. -8

$$-\frac{1}{8}$$

$$-\frac{8}{1} \cdot -\frac{1}{8} =$$

The product of any # and its reciprocal is 1

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Use the commutative property to write an equivalent expression:

a. $4 + 5x$ $5x + 4$
 $x=2$ $4 + 5(2)$ $5(2) + 4$
 14 14

b. $3(4)$ $4(3)$ $(4)3$

c. ~~$x \div 4$~~

~~$5 - 4$~~ ~~$4 - 5$~~
 ~~1~~ ~~-1~~

Aug 18-4:33 PM

Write an equivalent expression using the associative property:

a. $(3 + 4) + 5$

$3 + (4 + 5)$

b. $3(4x)$

$(3 \cdot 4)x$ $4(3x)$ Comm.
ASSOC.

c. $6 - (7 - 8)$

$(6 - 7) - 8$

Aug 18-4:38 PM

Use the distributive property to simplify:

a. $7(4x - y)$

$28x - 7y$

b. $-8(3 + x)$

$-24 - 8x$

c. $-10(2a + 3b - 4)$

$-20a - 30b + 40$

Aug 18-4:42 PM

Vocabulary:

Simplified: removing grouping symbols and combining any like terms

Terms: the addends of the expression; the elements between addition and subtraction signs.

Like Terms: the same variable(s) raised to the same power

$2x^2, x^2, -4x^2$ $2y^2, xy^2, y$

Identify how many terms the following expressions have:

a. $3x + 4y - 6$

3

b. $8x$

1

c. $-4y + 6 - 7y$ 3

$-11y + 6$ 2

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Find the like terms:

a. $3x$, 5 , $5xy$, $3x^2$, 6 , $-7xy$

b. 8 , y , $3y$, $4x$

c. $8m^2$, $-2mn^2$, $13n^2$, $5mn^2$

Aug 7-9:24 AM

We can simplify expressions by combining like terms:

a. $9x - 15x + 7$
 $= -6x + 7$

b. $8y + 1y$
 $9y$

c. $4x + 12x - 9 - 10$
 $16x - 19$

d. $3x + 3$

Aug 19-10:04 AM

We can use the distributive, commutative and associative properties to simplify expressions.

Simplify each expression:

a. $4y^2 + 2 - 3(y^2 + 3)$

b. $7st - 4st + 3 - 11 + st$

c. $\frac{1}{3}(9x - 6y) - \frac{1}{2}(8x - 4y + 1) - \frac{3}{4}$

Aug 19-10:06 AM

Find my mistake

Simplify:

$$(3.7x + 2.5) - (-2.1x - 1.3)$$

$$3.7x + 2.5 + 2.1x - 1.3$$

$$3.7x + 2.1x + 2.5 - 1.3$$

$$5.8x + 1.2$$

Aug 19-10:09 AM

