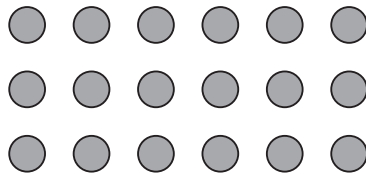


# array



An arrangement of objects, pictures,  
or numbers in columns and rows.

# Associative Property of Addition

The property which states that the way in which addends are grouped does not change the sum. It is also called the *Grouping Property of Addition*.

*Example:*  $(3 + 4) + 5 = 3 + (4 + 5)$

# Associative Property of Multiplication

The property which states that the way in which factors are grouped does not change the product. It is also called the *Grouping Property of Multiplication*.

*Example:*  $(6 \times 7) \times 9 = 6 \times (7 \times 9)$

# breaking apart

A mental math strategy used to add and subtract.

*Example:*

$$\begin{array}{r} 28 = 20 + 8 \\ + 35 = \underline{30 + 5} \\ \hline 50 + 13 = 63 \end{array}$$

So,  $28 + 35 = 63$

# clustering

An estimation strategy for finding sums.

*Example: Estimate*  $125 + 101 + 92$   
 $100 + 100 + 100 = 300$

# Commutative Property of Addition

The property which states that the order of addends does not change the sum. It is also called the *Order Property of Addition*.

*Example:*  $2 + 4 = 4 + 2$

# Commutative Property of Multiplication

The property which states that the order of factors does not change the product. It is also called the *Order Property of Multiplication*.

*Example:*  $3 \times 5 = 5 \times 3$

# compensation

Adding one amount to an addend and subtracting an equal amount from another addend to add mentally.

*Example:*  $38 \rightarrow \text{add 2 to make 40} \rightarrow 40$   
 $\begin{array}{r} + 56 \\ \hline \end{array} \rightarrow \text{subtract 2 to compensate} \rightarrow \begin{array}{r} + 54 \\ \hline 94 \end{array}$

So,  $38 + 56 = 94$

# doubles

A strategy for finding products.

*Example:* Since  $2 \times 3 = 6$   
Then  $4 \times 3 = 6 + 6$   
So  $4 \times 3 = 12$

**equal**

Having the same value.

# equation

A mathematical sentence with an equal sign.

*Examples:*  $3 + 1 = 4$   
 $2x + 5 = 9$

**estimate**

A number close to an exact amount,  
or to find an answer by rounding.

# expression

A number or group of numbers with operation symbols.  
An expression may have a variable.

# fact family

Facts that are related, using the same numbers.

*Examples:*

$$1 + 4 = 5$$

$$4 + 1 = 5$$

$$5 - 1 = 4$$

$$5 - 4 = 1$$

$$3 \times 5 = 15$$

$$5 \times 3 = 15$$

$$15 \div 3 = 5$$

$$15 \div 5 = 3$$

# front-end estimation

A method of estimating sums, differences, products, and quotients using front digits.

*Example:*

Step 1

Add the front-end digits.

$$\begin{array}{r} 473 \\ + 128 \\ \hline 500 \end{array}$$

Step 2

Adjust the estimate.

$$\begin{array}{r} 473 \\ + 128 \\ \hline 600 \end{array}$$

76 + 28 is  
about 100 more.

473 + 128 is about 600.

# function table

A table of ordered pairs that follows a rule.

Rule: $t = p \times 2$	
Input ( $p$ )	Output ( $t$ )
4	8
6	12
10	20

# inequality

Two expressions that are not equal.  
The symbols  $>$  ,  $<$  , and  $\neq$  show an inequality.

# inverse operations

Opposite operations. Addition is the inverse operation of subtraction. Multiplication is the inverse operation of division.

# multiple

A number that is the product of the given number and another number.

*Example:* 5, 10, 15, and 20 are all multiples of 5.

# order of operations

The order in which operations must be performed in order to arrive at a correct answer.

- First, do operations in parentheses.
- Then do multiplication and division in order from left to right.
- Finally, do addition and subtraction in order from left to right.

# parentheses ( )

Parentheses are used to show which operations should be done first.

*Examples:*

$(5 \times 2) - 1$	$5 \times (2 - 1)$
$10 - 1$	$5 \times 1$
$9$	$5$

# Property of One for Multiplication

The property which states that the product of 1 and any number is that number.

*Example:*  $4 \times 1 = 4$

**regroup**

To use place value to exchange  
equal amounts when renaming a number.

# remainder

The number that is left after one whole number is divided by another.

*Example:* 
$$\begin{array}{r} 5 \text{ R}2 \\ 5 \overline{)27} \end{array} \leftarrow \text{remainder}$$

# square number

The product of a number and itself.

*Example:*  $3 \times 3 = 9$   
9 is a square number.

# variable

A letter or a symbol that represents a number in an algebraic expression.

*Example:* In  $5 \times b = 10$ ,  
 $b$  is a variable worth 2.

# Zero Property of Addition

The property which states that the sum of any number and 0 is that number.

*Examples:*

$$9 + 0 = 9$$

$$0 + 5 = 5$$

# Zero Property of Multiplication

The property which states that the product of any number and 0 is 0.

*Examples:*

$$9 \times 0 = 0$$

$$0 \times 5 = 0$$