UNIT 9

KEY VOCABULARY

Key Vocabulary

OPERATIONS

These are used to solve problems. There are four operations in math—addition, subtraction, multiplication, and division.

FACTOR

This is a number that divides exactly into another number. For example, 4 divided by 2.

COMMUTATIVE (LAW)

In addition and multiplication, numbers may be added or multiplied in any order.

Key Vocabulary

ASSOCIATIVE (LAW)

In addition and multiplication, no matter how the numbers are grouped, the answer will always be the same. For example, (a+b)+c = a + (b+c).

INVERSE (OPERATIONS)

These are opposite operations. Addition and subtraction are inverse operations. Multiplication and division are inverse operations.

Sealaska Heritage Institute

LESSONS

Language and Skills Development

LISTENING

Let's Move

Identify an appropriate body movement for each vocabulary word. This may involve movements of hands, arms, legs, etc. Practice the body movements with the students. When the students are able to perform the body movements well, say a vocabulary word. The students should respond with the appropriate body movement. You may wish to say the vocabulary words in a running story. When a vocabulary word is heard, the students should perform the appropriate body movement. Repeat, until the students have responded to each word a number of times. Rather than using body movements, or—in addition to the body movements—you may wish to use "sound effects" for identifying vocabulary words. The students should perform the appropriate body movements/sound effects for the words you say.

Mini Pictures

Provide each student with a copy of the mini-pictures page from the Student Support Materials. When you say the key words, the students must find the pictures for them. Then, have the students cut out the pictures. Say the keywords and the students should hold up the pictures for them.

Student Support Materials

Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.

SPEAKING

The Disappearing Pictures

Mount five or six pictures on the board, vertically. Point to the picture at the top and tell the students to name it. Continue in this way until the students have named all of the pictures from top to bottom. Then, remove the last picture and repeat this process—the students should say all of the vocabulary words, including the name for the "missing" picture. Then, remove another picture from the board and have the students repeat this process. Continue in this way until the students are saying all of the vocabulary words from a blank board or until the students cannot remember the "missing pictures."

Under the Bridge

Have two students stand facing one another with hands clasped. The two students should raise their hands above their heads to resemble the arch of a bridge. Have the remaining students line up in a straight line. The students should file "under the bridge" in single file. When you clap your hands, the two students should lower their hands, trapping one of the students "on the bridge." The student who is trapped should then identify a vocabulary picture you show him/her. Repeat until a number of students have responded.

Language and Skills Development

READING

Face

Mount the sight words around the classroom on the walls, board, and windows. Group the students into two teams. Give the first player in each team a flashlight. Darken the classroom, if possible. Say one of the sight words. When you say "Go," the students should turn their flashlights on and attempt to locate the sight word you said. The first player to do this correctly wins the round. Repeat until all players in each team have participated.

Flashlight Encode

Cut each of the sight words in half. Mount all of the word halves in a scattered form on the chalkboard. Stand in front of the chalkboard with two flashlights. Shine the light of one flashlight on a word half. Then, shine the light of the other flashlight on its matching half. The students should say the sight word. However, when the lights of the two flashlights are shining on word halves that do not go together, the students should remain silent. If four flashlights are available, this activity may be done in team form. In this case, give the first player in each team two flashlights. Say a sight word. The first player in each team must then use his/her two flashlights to illuminate the word halves for the sight word you said. The first player to do this correctly wins the round.

Letter Encode

Give each student his/her envelope that contains the alphabet letters. Show a picture from this unit. The students must use the cut out letters to spell the word for the picture. Review the students' work. Repeat, until all of the words have been spelled.

WRITING
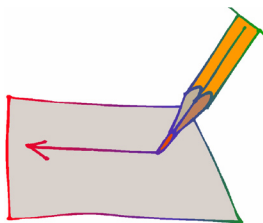
Watch Your Half

Prepare a photocopy of each of the vocabulary pictures. Cut the photocopied pictures in half. Keep the picture halves in separate piles. Group the students into two teams. Give all of the picture halves from one pile to the players in Team One. Give the picture halves from the other pile to the players in Team Two. Say a vocabulary word. When you say "Go," the student from each team who has the picture half for the vocabulary word you said should rush to the board and write the word on the board. The first player to do this correctly wins the round. Repeat until all players have participated. This activity may be played more than once by collecting, mixing, and redistributing the picture halves to the two teams.

Student Support Materials

Have the students work on the activity pages from the Student Support Materials from this unit. Afterward, review their work.

VOCABULARY PICTURES

$$(1 + 2) + 3$$
$$= 1 + (2 + 3)$$
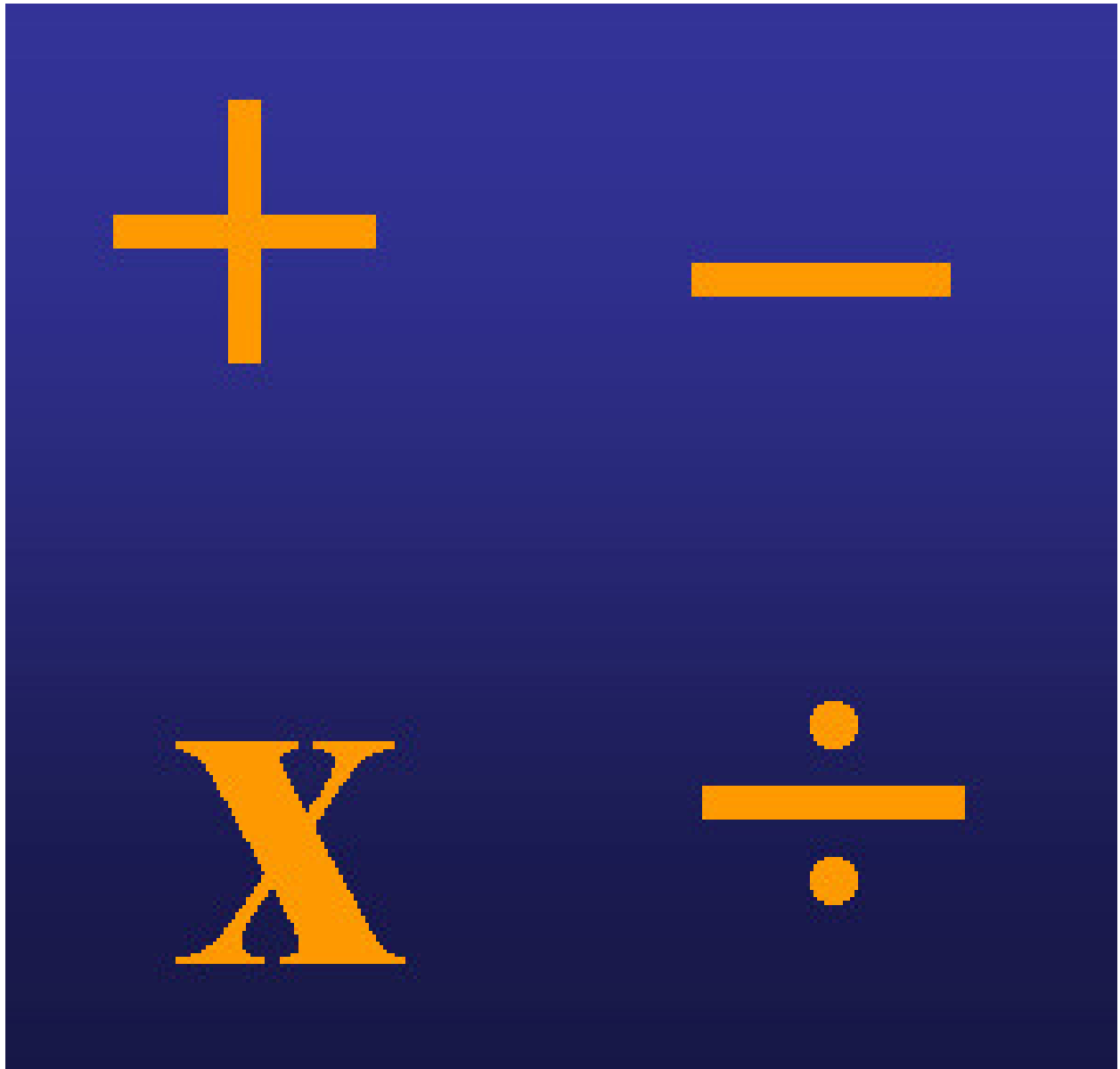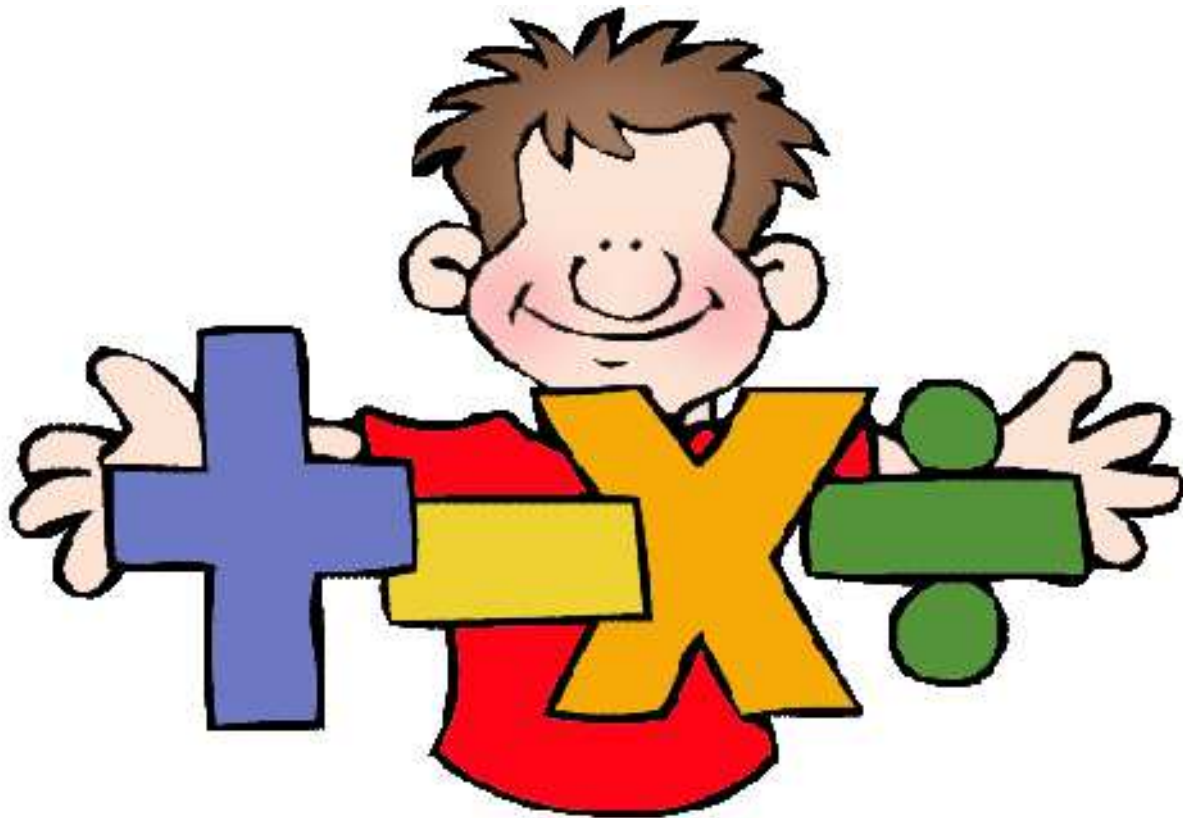
ASSOCIATIVE

1 + 2

= 2 + 1

COMMUTATIVE

FACTOR

INVERSE OPERATIONS

OPERATIONS

STUDENT SUPPORT MATERIALS
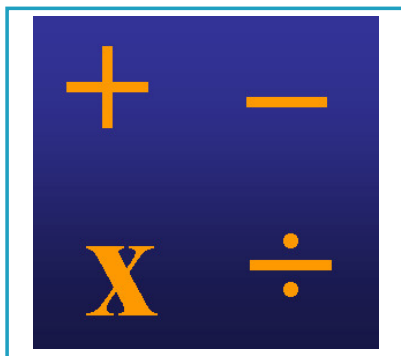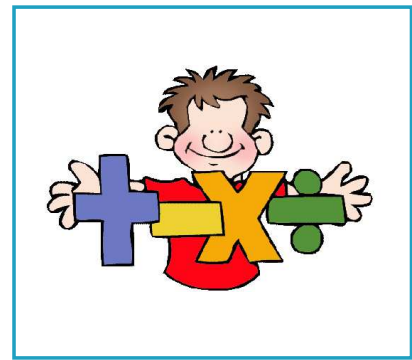
Listening • **Mini Pictures**

Numbered Pictures

Say the key math words for this unit and associate each word with a number from one to five. The students must write the numbers of the words under their pictures.

$$1 + 2 = 2 + 1$$

_____

_____

_____
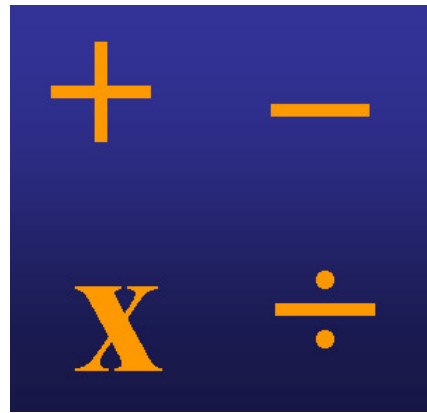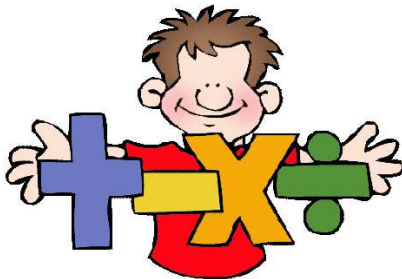

$$(1 + 2) + 3 = 1 + (2 + 3)$$

_____

_____

Mini Pictures

Provide each student with a copy of this page. The students should cut out the pictures and lay them on the floor or desks. Say the key words a number of times; the students must hold up the pictures for the words you say. You can also have pairs of students participate in the activity, to see which student can locate the correct graphic first. Later, say three words and the students must find the correct pictures to reproduce the sequence of words that you said. Repeat using different sequences of key words.

$$1 + 2$$
$$= 2 + 1$$

$$(1 + 2) + 3$$
$$= 1 + (2 + 3)$$

STUDENT SUPPORT MATERIALS

Reading • **Sight Recognition and Encoding**

Reading Comprehension

commutative

factor

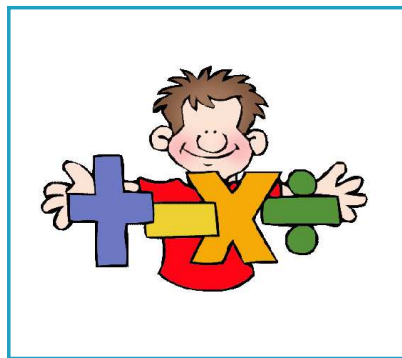# operations

inverse

associative

Sight Words Activity Page
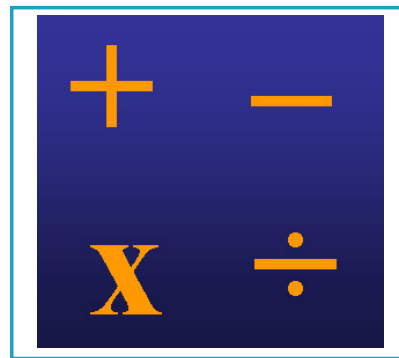
Have the students circle the word for each picture.

operations
factor
commutative
associative
inverse

$$1 + 2 = 2 + 1$$

operations
factor
commutative
associative
inverse

operations
factor
commutative
associative
inverse

operations
factor
commutative
associative
inverse

$$(1 + 2) + 3 = 1 + (2 + 3)$$

operations
factor
commutative
associative
inverse

Encoding Activity Page

Have the students cut out the word halves and glue them together to create the key words for this unit.

oper	tative
fac	ative
commu	verse
associ	tor
in	ations

Encoding Activity Page

Have the students cut out the word parts and glue them into their correct words.

o_____ations

fac_____

com_____

assoc_____tive

_____verse

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tor	per

Word and Definition Match

Have the students write the word numbers under their matching definitions.

These are used to solve problems.	This is the part of a fraction, below the line.	This law says that in addition and multiplication, no matter how the numbers are grouped, the answer will always be the same.
These are two things that go together.	This law says that in addition and multiplication, numbers may be added or multiplied in any order.	This relates to a number system based on 10.
These are opposite operations.	These are positive and negative numbers.	This is a number that divides exactly into another number.

1. operations	2. factor	3. commutative	4. associative	5. inverse

What's the Answer?

Have the students read the text and then select the correct answer for it. They should fill in the appropriate bullet beside the answer of their choice.

1 Which one of these is an operation?
  ○ percent
  ○ properties
  ○ addition

2 Which operation goes with factors?
  ○ multiplication
  ○ division
  ○ addition

3 Which of these shows the commutative law?
  ○ 2+4=4+2
  ○ 10-4=6
  ○ (3+4)+5=11

4 Which of these shows the associative law?
  ○ (2+4)+5=11
  ○ (4-2)+4=6
  ○ (2+4)+3=2+(4+3)=9

5 Which of these are inverse operations?
  ○ addition and multiplication
  ○ multiplication and division
  ○ subtraction and division

Which Belongs?

Have the students write the word that is correct for each sentence.

(1) **Operations/Integers** are used to solve problems.

(2) A **factor/decimal** is a number that divides exactly into another number.

(3) The **commutative/associative** law states that numbers may be added or multiplied in any order.

(4) The **commutative/associative** law states that in addition and multiplication, the answer will always be the same.

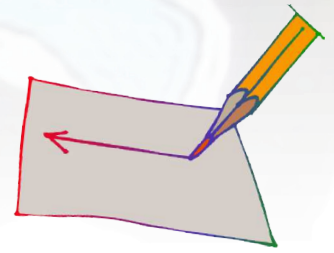(5) **Inverse/Negative** operations are opposite operations.

STUDENT SUPPORT MATERIALS

Basic Writing

Crossword Puzzle

ACROSS

1 In addition and multiplication, numbers may be added or multiplied in any order.
3 This is a number that divides exactly into another number.
4 These are used to solve problems. There are four of these.
5 These are opposite operations.

DOWN

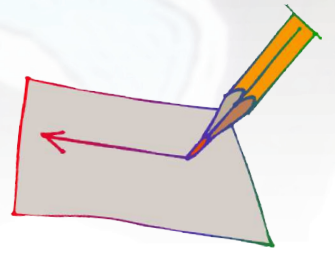**2** In addition and multiplication, no matter how the numbers are grouped, the answer will always be the same.
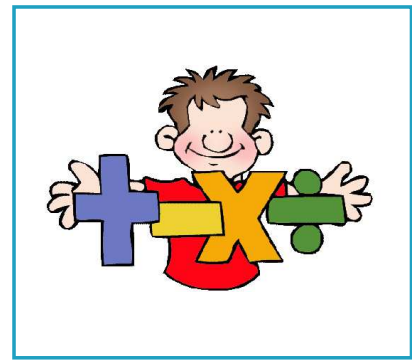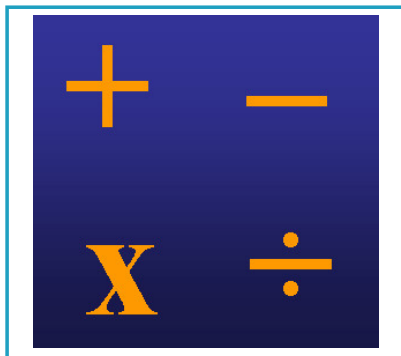
Crossword Puzzle Answers

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C O M M U T A T I V E
          S
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    F A C T O R
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  O P E R A T I O N S
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    I N V E R S E
          E
```

Basic Writing Activity Page

Have the students write the word for each picture.

1 + 2 = 2 + 1

_____ _____ _____

(1 + 2) + 3 = 1 + (2 + 3)

_____ _____

UNIT ASSESSMENT

Teacher note: When using the Developmental Language Process in math, listening comprehension and creative writing are not always used. However, we have included these skills in this assessment. It is your decision as to whether or not to include them in the unit's assessment.

MATH PROGRAM

Unit Assessment Teacher's Notes
Grade 6   ●   Unit 9

Date:_____

Unit Assessment

Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.

BASIC LISTENING

Turn to page 1 in your test. Look at the pictures in the boxes.

1. Write the number 1 on top of the picture for **OPERATIONS**.

2. Write the number 2 on top of the picture for **FACTOR**.

3. Write the number 3 on top of the picture for **COMMUTATIVE** law.

4. Write the number 4 on top of the picture for **ASSOCIATIVE** law.

5. Write the number 5 on top of the picture for **INVERSE** operations.

LISTENING COMPREHENSION

Turn to page 2 in your test. Listen to the sentences I say. Circle "T" for true and "F" for false sentences."

1. There are three operations in math.

2. A factor can be divided exactly into another number.

3. The commutative law says that all fractions and whole numbers are equivalent.

4. The associative law says that the grouping of the numbers in addition and multiplication will not change the answers.

5. Addition and subtraction are inverse operations.

SIGHT RECOGNITION

Turn to page 3 in your test. Look at the pictures in the boxes. Circle the word for each picture.

DECODING/ENCODING

Turn to page 4 in your test. Look at the word parts in the boxes. Circle the other half or part of each word.

Unit Assessment

Provide each student with a copy of the students' pages. Read the following instructions aloud. The students should answer the questions on their copies of the assessment.

READING COMPREHENSION

Turn to page 5 in your test. Read the sentence part and fill in the bullet for the correct sentence ending.

BASIC WRITING

Turn to page 6 in your test. Look at the pictures in the boxes. Write the word for each picture.

CREATIVE WRITING

Turn to page 7 in your test. Write a sentence of your own, using each word.

Teacher: To get a percentage for this student's assessment, divide the total number of questions correct by the total number of questions, then multiply this answer by 100 to determine the percentage of questions answered correctly.

MATH PROGRAM

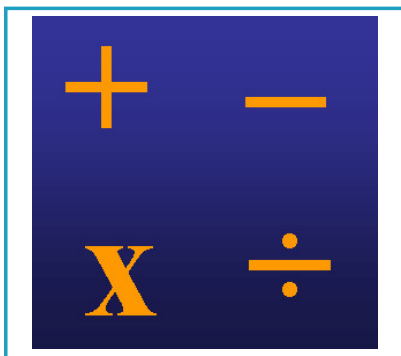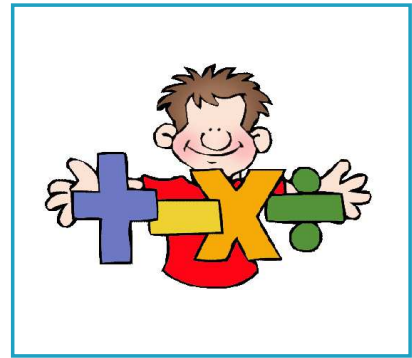**Unit Assessment Student Pages**
Grade 6   •   Unit 9

Date:_____   **Student's Name:_____**

Number Correct:_____   **Percent Correct:_____**

$$1 + 2 = 2 + 1$$

$$(1 + 2) + 3 = 1 + (2 + 3)$$

1.   **T**   **F**
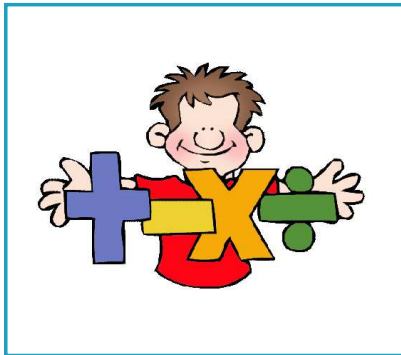
2.   **T**   **F**
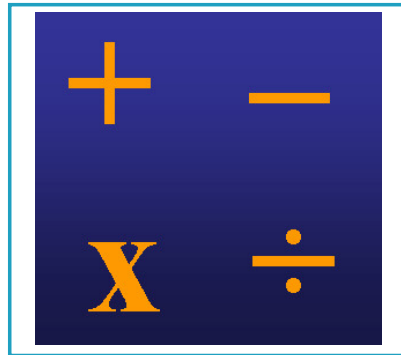
3.   **T**   **F**

4.   **T**   **F**

5.   **T**   **F**

operations
factor
commutative
associative
inverse

$1 + 2$
$= 2 + 1$

operations
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associative
inverse

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$(1 + 2) + 3$
$= 1 + (2 + 3)$

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1 In math, what are operations used for?

     ○ They are used to solve problems.
     ○ They are used to find parentheses.
     ○ They are used to identify people.

2 In math, what is a factor?

     ○ A number that is less than 0.
     ○ A number that divides exactly into another number.
     ○ A number that shows inequality.

3 What does the commutative law say?

     ○ In addition and multiplication, numbers can be used in any order.
     ○ In addtion and multiplication, numbers must be in parentheses.
     ○ In addition and multiplication, the grouping of the numbers does not change the answer.

4 What does the associative law say?

     ○ In addition and multiplication, numbers can be used in any order.
     ○ In addtion and multiplication, numbers must be in parentheses.
     ○ In addition and multiplication, the grouping of the numbers does not change the answer.

5 Addition and subtraction are

     ○ mixed numbers.
     ○ inverse operations.
     ○ standard forms.

1 + 2
= 2 + 1

(1 + 2) + 3
= 1 + (2 + 3)

OPERATIONS

_____
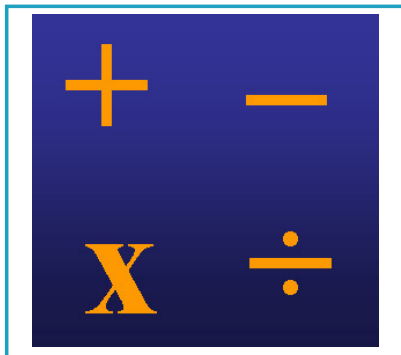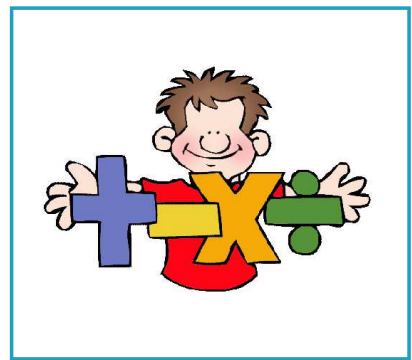
FACTOR

_____

COMMUTATIVE LAW

_____

ASSOCIATIVE LAW

_____

INVERSE OPERATIONS

_____