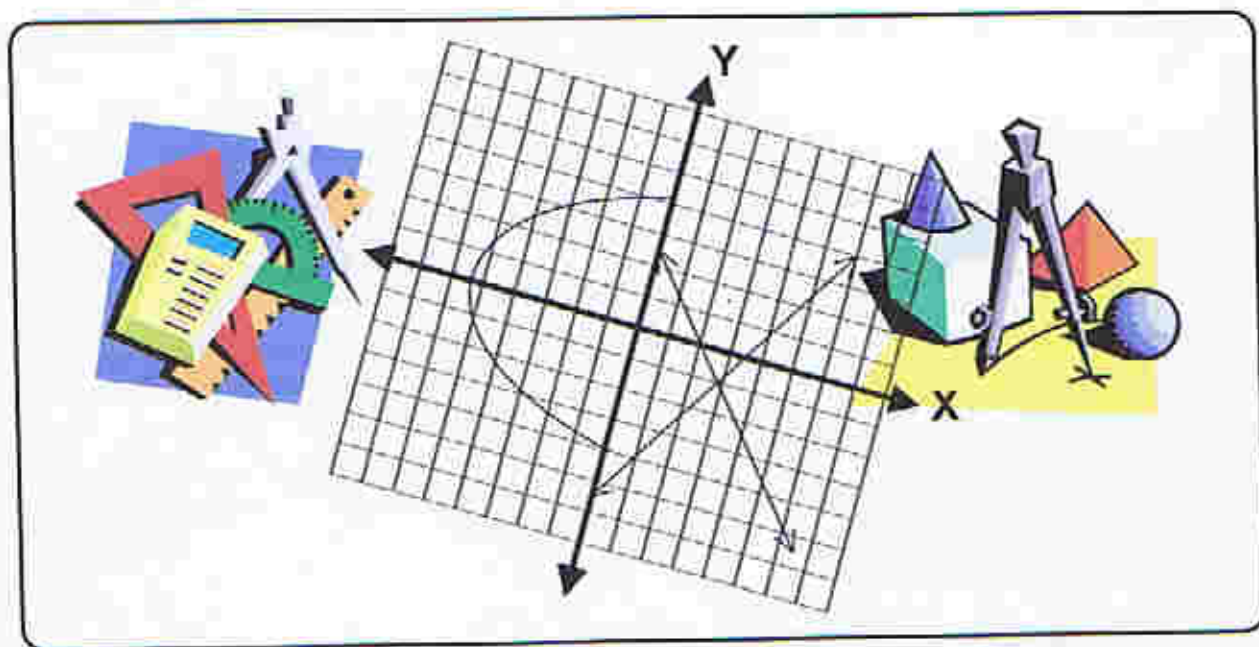


Project EASE

(Effective and Alternative Secondary Education)

MATHEMATICS I



MODULE 3

The Real Thing



BUREAU OF SECONDARY EDUCATION
Department of Education
DepEd Complex, Meralco Avenue
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Module 3

The Real Thing



What this module is all about

This module is about real numbers specifically the concepts of *whole numbers*, *natural numbers*, and *integers*. It also includes discussions on the *absolute value* of a number as well as basic operations on absolute values of numbers. The ideas that you will encounter in this module will help you understand many things that happen around you. It will also prepare you to do greater tasks in mathematics

The lessons in this module are as follows:

- Lesson 1 Natural Numbers and Whole Numbers**
- Lesson 2 Integers**
- Lesson 3 Ordering Integers**
- Lesson 4 Absolute Value of a Number**



What you are expected to learn

After using this module, you are expected to:

- grasp the concepts of a natural number, a whole number, and an integer;
- demonstrate understanding of the concepts of a natural number, a whole number, and an integer;
- describe and illustrate opposite quantities in real life situations and conditions;
- visualize integers and their order on a number line;
- understand the absolute value of a number;
- determine the absolute value of a number; and
- perform simple addition and multiplication on absolute values of numbers.

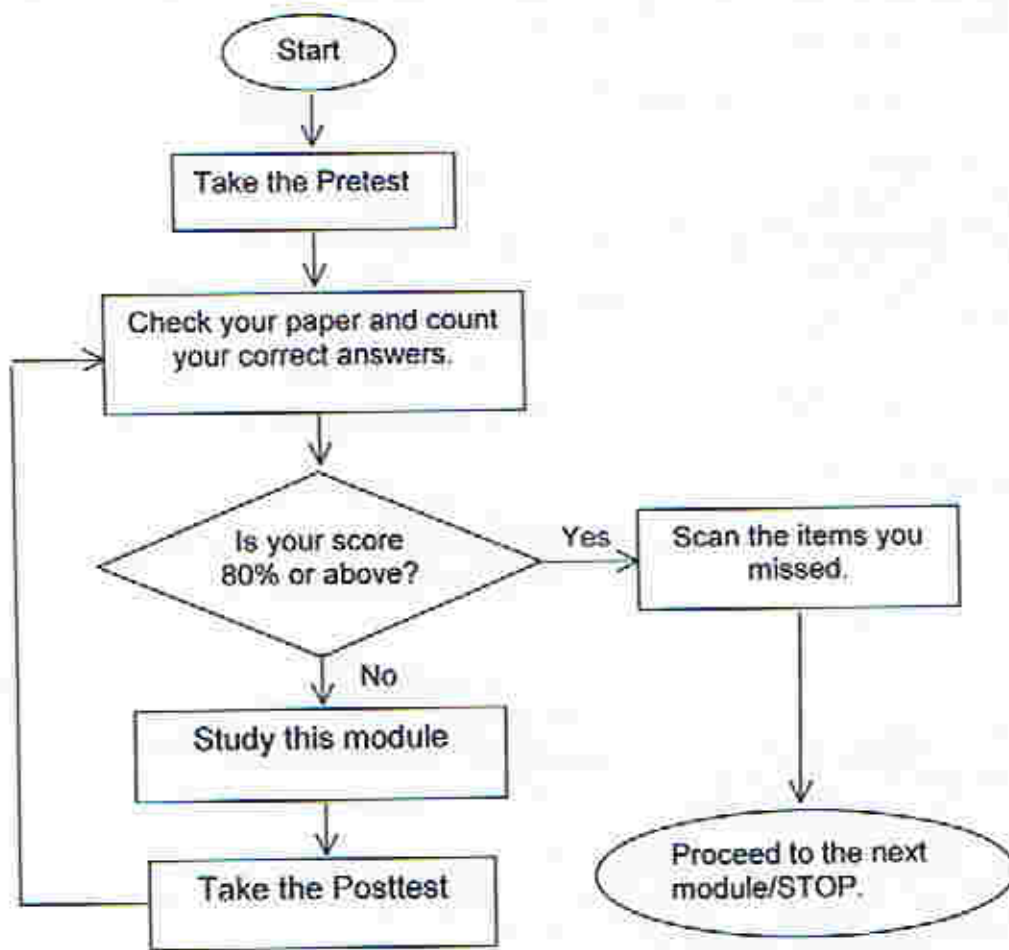


How to learn from this module

This is your guide for the proper use of the module:

1. Read the items in the module carefully.
2. Follow the directions as you read the materials.
3. Answer all the questions that you encounter. As you go through the module, you will find help to answer these questions. Sometimes, the answers are found at the end of the module for immediate feedback.
4. To be successful in undertaking this module, you must be patient and industrious in doing the suggested tasks.
5. Take your time to study and learn. *Happy learning!*

The following flowchart serves as your quick guide in using this module.





What to do before (Pretest)

Before you start this module, take the following **Pretest**.

Directions: Read the following items carefully. Then choose the letter of the best answer from the selections that follow.

1. The number 28 is _____.
A. a whole number
B. a natural number
C. an integer
D. All of the above
2. Which of the following statements is NOT true about the number zero?
A. Zero is a whole number.
B. Zero is a natural number.
C. Zero is an integer.
D. Zero is a real number.
3. Which of the following statements is TRUE about natural numbers?
A. Natural numbers are counting numbers.
B. Every whole number is a natural number.
C. Any real number is a natural number.
D. Natural numbers start with 0.
4. Which of the following statements is TRUE about the numbers 0, 3, 6, 9, 12?
A. They are natural numbers.
B. They are whole numbers.
C. They are counting numbers.
D. All of the above.
5. Which of the following is an integer?
A. 0
B. -100
C. 1000
D. All of these
6. Integers could be
A. positive B. negative C. zero D. All of these

7. All of the following are sets of integers except _____.
- A. 0, 0.5, 1, -2, -15
 B. -20, -30, -40, -50, -60
 C. 10, 12, 18, 25, 32, 71
 D. 0, -14, 25, -30, 250
8. The opposite of -25 is _____.
- A. -50 B. $+25$ C. $+5$ D. 0
9. 80 kilometers above sea level is represented as a signed number as _____.
- A. $+160$ B. $+100$ C. 0 D. $+80$
10. Suppose we consider 12:00 noon as 0 hour, what time is $+5$ hours? _____.
- A. 4:00 B. 5:00 C. 6:00 D. 17:00
11. Which of the following is an expression of absolute value?
- A. (15) B. {15} C. |15| D. [15]
12. The expression $|16| + |-4|$ is equal to _____.
- A. 20 B. -20 C. +12 D. -12
13. What is twice the absolute value of -6 ?
- A. -12 B. 12 C. -6 D. 6
14. Consider 12:00 noon as 0 hour. How is 4:00 p.m. expressed as a signed number?
- A. +8 B. +4 C. -4 D. +2
15. Mr. Rodolfo deposited P2000 in a bank. Express this as a signed number.
- A. +4000 B. -4000 C. +2000 D. -2000



Answer Key on page 25



What you will do

Read the following lessons carefully, do the activities patiently, and do the self-check to monitor your understanding of the concepts and processes.

Lesson 1 Natural Numbers and Whole Numbers



Exploration

Let us explore the world of some numbers. In preparation for this, you do the following activity.

Activity 1. HOW MANY?

Directions: Do as directed for each section of this activity.

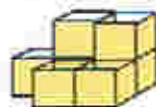
Section A. First, consider carefully the figure at the right. Then answer the following questions. Write your answers on the spaces provided.

How many people do you find in the picture? _____

How many flowers do you see in the plant box? _____

How many bookshelves do you see in the picture? _____

Boxes are stacked one after the other as shown. How many such boxes are there? _____




Section B. Answer the following items carefully.

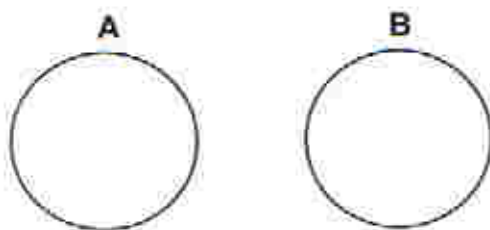
How many colors are there in a rainbow? _____

How many days of the week are there? _____

How many songs can you sing? _____

- How many ball games do you enjoy watching? _____
- Consider a box, . How many corners does it have? _____

You have just given numbers. List the numbers that you have given in circle A.



Can you think of a way to name the numbers in circle A? _____

Section C. Answer the following questions carefully.

- How many flying horses have you seen before? _____
- How many kinds of snakes have legs? _____
- How many white elephants are there in this room? _____
- How many birds that can sing and dance are found in this room? _____

Now, write your numbers in circle B above.

Compare the numbers in circle A and circle B.

What can you say about these numbers? _____

Think about this!

Do you think we can start counting from zero? _____

Why? _____

Remarks: You can find the answers to the above questions in the following discussions.



Did you know?

When we count, we assign a number for an entire item taken into consideration. In counting, we use the numbers 1, 2, 3, 4, 5, and so on. For example, we can count ten children playing in a playground or three birds perched on a branch of a tree. Did you write the numbers 6, 5, 4, and 7 in circle A? _____ These are the counting numbers for Section A in Activity 1. In Section B, there are seven colors of the rainbow just as there are seven days

of the week. The number of songs that you sing and the number of ball games that you watch are yours to give. With regard to the number of corners of a box, the answer is eight.

The counting numbers are better known as *natural numbers*. In the number system, they form a different group of numbers and there are infinitely many of them. There is a special way of writing this group of numbers. We represent this group of natural numbers by writing $\{1, 2, 3, \dots\}$ where the three dots mean *and so on*. That is, you can go on counting for as long as you want. Note that for grouping, we use the special symbols $\{ \}$.

The natural numbers answer the question **How many?**

If there is no item to match a count, we represent this by the number *zero*. For example, we want to count how many white elephants there are in this classroom but we cannot find any. *There is nothing to be counted*. So, we say that there are 0 white elephants in the classroom. However, it is more appropriate to use the word 'no' instead of the number 0 in statements like this. Did you write 0 for all of Section B in Activity 1? _____

Historical Brief

Zero, denoted by 0, is a number introduced by the Indian mathematicians.

Zero means nothing, null, void, or absence of value.

The name 'zero' derives from the Arabic *sifr* where the word *cipher* was derived.

Zero is not considered a counting number. It belongs to another group of numbers that we usually call *whole numbers*.

The whole numbers are the counting numbers and zero. If we list these numbers, we have 0, 1, 2, 3, 4, 5, and so on. Just like the natural numbers, there are infinitely many whole numbers.

We can also write the whole numbers like this:

$\{0, 1, 2, 3, \dots\}$

where the three dots mean *and so on*.

Remember this:

The whole numbers are the natural numbers and 0.

Now that you know better about natural numbers and whole numbers, you can give examples of your own. Just look around you, or recall past experiences, and simply *count whole units of objects, people, and events* that you are interested in. The results are called *whole numbers*.

Examples:

1. There are 20 fruit-bearing trees at the foot of a hill.
2. Ramon plans to visit 5 tourist spots during summer.
3. Earl has 2 pet dogs at home.
4. The aviary has 10 different kinds of birds.
5. David made 6 different drawings of animals he saw in a zoo.

Think about this!

- ✧ The *natural numbers* and *zero* are called **whole numbers**.
- ✧ The numbers that are used for counting are called **natural numbers**.



Self-check 1

Before you continue reading this module, try to do the following exercises to check your understanding of the concepts.

A. Write *N* on the space before the item number if the number yields a natural number.

- ___ 1. number of large bodies of water that surround the Philippines
- ___ 2. number of potted plants along the hallway
- ___ 3. white stripes on a carabao hide
- ___ 4. people in a lion's den
- ___ 5. trees in planet Venus

B. Write *W* on the space before the item number if the number yields a whole number..

- ___ 1. your age
- ___ 2. fish in the ocean
- ___ 3. candies in a jar
- ___ 4. children playing in the Rizal Park
- ___ 5. number of people you greeted "Good morning!" today



Answer Key on page 26

Lesson 2 Integers

Do the following activity carefully.



Activity 2.1 OPPOSITES I

- A. **Stand up straight.** Then **DO** the opposite of the action described by modifying the underlined word.

- Example: 1. Both hands up
2. Right hand up
3. Feet apart
4. Frown
5. Clench both fists
6. Bend your body to the left
7. Turn 90 degrees to the right

What you do

1. Both hands down
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

- B. Write the word opposite of each of the words listed below. The first has been done for you.

- Example: 1. Happy
2. North
3. Good
4. Deposit
5. Honest
6. Industrious

What you write

1. Sad
2. _____
3. _____
4. _____
5. _____
6. _____



Answer Key on page 26

Think about this!

Numbers also have opposites. We will explore this next.



Exploration

Can you think of a way to show numbers and their opposites? _____

In mathematics, we usually use the idea of a line to show numbers. Recall that a line is made up of infinitely many points.

The points of a line and the set of real numbers can be paired.

Since there are infinitely many points, we also say that there are infinitely many numbers.

Now, we can use the line to show the numbers we want. Such line is called a *number line*. We make a number line like this:

- ✦ First, we draw a line.



- ✦ Next, on the line, we locate points of equal distances from each other.



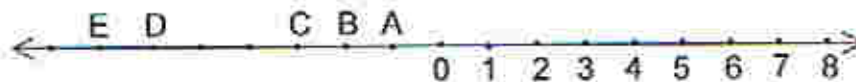
- ✦ Finally, on the line, we pair each point to a number as shown below:



The result is called a *number line*.

Can you think of numbers that you can pair to the points at the left of 0? _____

Some of these points are named A, B, C, D, and E as shown in our following number line. Write the numbers opposite these points.



What did you pair with A? ___ B? ___ C? ___ D? ___ E? ___?

Why? _____



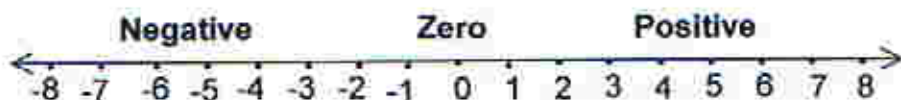
Answer Key on page 26

You have just formed another group of numbers that can be shown on a number line. We call these *integers*. On the box that follows, write the kind of numbers that you find in the set of integers.

Look at the number line below. To differentiate the numbers from one another, we say that

- ✶ The numbers to the right of 0 are *positive integers*.
- ✶ The numbers to the left of 0 are *negative integers*.

The integers on a number line are shown as follows:



Think about this!

0 is the only integer that is neither positive nor negative.
There are numbers that are less than zero. These are the numbers you find at the left of 0.

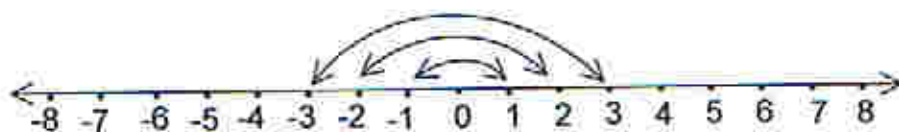
The signs + and – are the symbols used to indicate addition and subtraction, but in the number line they indicate the direction of a point from the 0-point, not as operations to be performed. In the number line, + and – are used as signs of directions. Thus,

read +2 as 'positive 2' *not* 'plus 2'.

read –2 as 'negative 2' *not* 'minus 2'.

On the number line where you find points A, B, C, D, and E, the point A is paired with -1 , point B is paired with -2 , and point C is paired with -3 , point D is paired with -6 , and point E is paired with -7 .

Now, look at the following number line. The arrows indicate the opposite numbers. For example: The opposite of $+1$ is -1 , the opposite of -2 is $+2$, and the opposite of -3 is $+3$. It does not really matter which number is given first. What is more important is the idea of *opposite*. Using the number line, answer the questions that follow.



What is the opposite of -8 ? _____

What is the opposite of 7 ? _____



Answer Key on page 26

Think about this!

We write a negative integer within parentheses so that we can easily distinguish it from a positive integer. For example: (-5) .

In real life, there are conditions and situations that are opposites. For example, the opposite of closing a book is opening the book, the opposite of going three steps up the stairs is going three steps down the stairs, the opposite of a profit of Php8 is a loss of Php8.

We can express opposites by means of signed numbers. For example, going three steps down the stairs could be described as (-3) and a profit of Php8 is described as $+8$. A loss of 9 pesos is expressed as (-9) and a gain of 7 pesos is expressed as $+7$.

Do the following activity carefully. It will enhance your understanding of opposites.



Activity. 2.2 OPPOSITES 2

Directions: Write the appropriate situation/condition and their corresponding numbers to indicate the exact opposites in each of the given situations/conditions.

Example: Five steps forward +5

Five steps backward (-5)

Start here!

1. You go north 50 kilometers

2. Sixty feet below sea level

3. Going up two floors of a building.

4. Earning P1 000.00

5. Spending Php525.00

6. Gaining a weight of 3 pounds

7. 20° Centigrade above freezing point



Answer Key on page 26



Self-check 2

Before you continue reading this module, try to do the following exercises to check your understanding of the concepts and processes.

A. Write the opposite of each of the following on the space provided for it.

- 1) Negative
- 2) Open the door
- 3) Hop to the right
- 4) 200 meters forward
- 5) Turning 90 degrees to the right

B. Name the integer that is suggested by each of the following.

- 1) In a sportsfest, the Red Team won by 36 points.
- 2) Maria's profit for selling fruit candies was Php1,000.00.
- 3) David counted an excess of 15 marbles.
- 4) The temperature yesterday was 33° above zero.
- 5) Last Wednesday, Jane withdrew Php3,000.00 from her savings account.



Answer Key on page 26

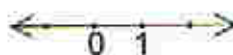
Lesson 3. Ordering Integers



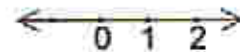
Did you know?

The points on a line and the set of real numbers can be paired as shown below:

- ✶ 1 is found at the right side of 0 and 1 is greater than 0.



* 2 is found at the right side of 1 and 2 is greater than 1.



* 10 is found at the far right of 3 and 10 is greater than 3.



* 100 is found at the very far right of 10 and 100 is greater than 10.



Now, based on your observation, when do we say that a number is greater than another number? Write your answer in the following box.

Look at the number line at the right. Since ...

* -1 is found at the right side of -2, then -1 is greater than -2.



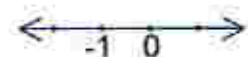
* -2 is found at the right side of -3, then -2 is greater than -3.



* -3 is found at the right side of -4, then -3 is greater than -4.



* 0 is found at the right side of -1, then 0 is greater than -1.



* -10 is found at the far right side of -100, then -10 is greater than -100.



Observe further that

* 1 is found at the left side of 2 and 1 is less than 2.



* 2 is found at the left side of 3 and 2 is less than 3.



* 3 is found at the left side of 4 and 3 is less than 4.



* 10 is found at the far left of 100 and 10 is less than 100.



Think about this!

The symbol $>$ is read 'is greater than'.

The symbol $<$ is read 'is less than'.

The symbols $>$ and $<$ are used to make comparison statements.

They are called symbols of **order**. Sometimes, we refer to them as **order relations**.

Examples: *Five is greater than 3* is written in symbols as $5 > 3$.

-4 is less than 4 is written as $-4 < 4$.

Remarks: The phrase 'is greater than' is different from the phrase 'greater than'. The phrase *greater than* implies *more than*.

Examples:

<i>Is greater than</i>	<i>Greater than</i>
5 is greater than 2 is written as $5 > 2$. 15 is more than 10 is written as $15 > 10$. x is more than 4 is written as $x > 4$	<i>5 greater than 2</i> is written as $2 + 5$. 15 more than 10 is written as $10 + 15$ <i>x more than 4</i> is written as $4 + x$ or $x + 4$.

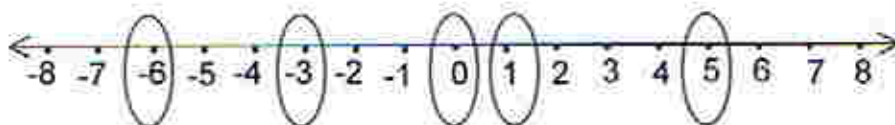
Similarly, the phrase 'is less than' is different from 'less than'. The phrase *less than* implies *less* or the operation of subtraction

Examples: 3 less than 6 is written as $6 - 3$.

9 less than 12 is written as $12 - 9$.

y less than 8 is written as $8 - y$

We can order integers in such a way that the smaller numbers are to the left of the larger numbers. In this case the numbers are arranged in *ascending order*, that is, from the smallest to the largest. We can show this on a number line. For example, if we order $-3, 1, 0, 5, -6$ in ascending order, first we draw a number line showing these integers and then circle the given integers for easy identification as done below:



Referring to the number line, we see that the smallest is -6 and the largest is 5 . Thus, the correct order of $-3, 1, 0, 5, -6$, from smallest to largest, is $-6, -3, 0, 1, 5$.

If we order the numbers in *descending order*, that is, from the largest to the smallest, then we write $5, 1, 0, -3, -6$.

Now, try the following activity. You can easily do it!



Activity. 2.3 ORDERING NUMBERS

A. Write the correct order relation between the following pairs of numbers.

1) 12 ___ 8

6) -28 ___ 0

2) 0 ___ -4

7) -11 ___ -9

3) -4 ___ 4

8) 54 ___ 102

4) -15 ___ -25

9) -79 ___ 250

5) -2 ___ -8

10) -150 ___ 0

B. Arrange the numbers in ascending order (that is, from smallest to largest).

1) $0, 1, 4, -5, -8, 12$

2) $-15, 18, 0, -10, 22, -57$

3) $4, -12, 0, -7, -16, -30, -45$

4) $0, 1, -1, -13, 22, -33, 51, -60$

5) $-2, 4, 10, -12, -19, -28, 33, 75$

C. Arrange the numbers in descending order (that is, from largest to smallest).

1) $23, -12, 4, -5, -18, 12$

2) $-35, 38, 30, -40, 42, -57$

3) $14, -12, 0, -17, -26, -30, 45$

4) $-13, 0, 11, -1, -23, 22, -33, 51,$

5) $-2, 4, 12, -16, -27, -20, 31, 52$



Answer Key on page 26



Self-check 3

Before you continue reading this module, try to do the following exercises to check your understanding of the concepts and processes.

A. Write the correct symbol between each pair of numbers that follow.

(1) $5 \underline{\quad} -5$ (2) $12 \underline{\quad} -12$ (3) $-344 \underline{\quad} -25$ (4) $24 \underline{\quad} 10$

B. Order the numbers in ascending order.

1) $-14, -8, 0, 3, 1, 26, -58$ _____

2) $0, -45, 36, -18, -3, 100$ _____

3) $-120, -200, 150, 1, 8, 0$ _____

4) $15, -26, -78, 64, 58, 95$ _____

5) $11, -10, 0, 63, -92, 25$ _____

C. Order the numbers in descending order.

1) $24, -18, 3, 1, -26, -58$ _____

2) $0, -23, 36, -18, 33, 100$ _____

3) $100, -200, 150, 1, 8, 0$ _____

4) $15, -26, 78, 64, 58, -15$ _____

5) $-15, -11, -10, 0, 63, -91$ _____



Answer Key on page 27

TRY THIS FOR A CHANGE!



Jaime discovered that he had spent all of his room and board money on less academic pursuits. He quickly telegraphed his parents for cash but he could only afford to pay for three words. Luckily, he was able to send his request, the total amount needed, and the breakdown in this simple message:

SEND
+ MORE
MONEY

How much did Jaime need altogether and what were the portions for room and board? (To decode, a letter corresponds to a number.)



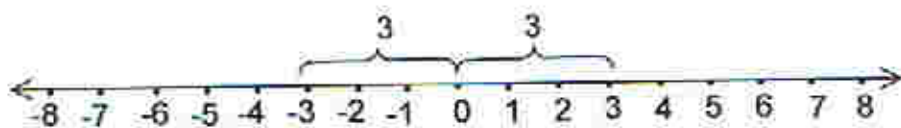
Answer Key on page 27

Lesson 4. Absolute Value Of A Number



Exploration

Consider the following number line:



- A. How far away is -3 from 0 ? _____
How far away is 3 from 0 ? _____

How far away is 3 from 0? _____

What can you say about the two distances? _____

B. How far away is 6 from 0? _____

How far away is -6 from 0? _____

What can you say about the two distances? _____



Answer Key on page 27

Think about this!

The absolute value of a number is its distance from 0 on the number line.

We use the symbol $|n|$ to represent "the absolute value of n ". The absolute value of a number is either positive or negative. In our number line, $|3| = 3$ and $|-3| = 3$. More formally, we state the following definition

Think about this!

For any number n ,

$|n| = n$ if n is a positive number or 0.

$|n| = -n$ if n is a negative number.

To put it simply, if you ignore the sign of a number, the result is called the *absolute value of that number*. Thus, $|8| = 8$, and $|-150| = 150$. You can do simple operations with the absolute values of numbers by simply ignoring the signs and then performing the

indicated operations. For example: If you evaluate $|-10|+|14|$, then you write $|-10|+|14|=10+14=26$. If you want to evaluate $|28|\times|-15|$, then you have $|28|\times|-15|=28\times 15=420$.



Self-check 4

Before you continue reading this module, try to do the following exercises to check your understanding of the concepts and processes.

A. Give the absolute value of each of the following:

1) $|19|$ _____

2) $|-35|$ _____

3) $|29|$ _____

4) $|-56|$ _____

5) $|-91|$ _____

B. Evaluate each of the following:

1) $|25|+|-13|$ _____

2) $|-15|-4$ _____

3) $|-22|+|-72|$ _____

4) $(-12)(-6)$ _____

5) $|-82|-|-45|$ _____



Answer Key on page 28



Let's summarize

- ✱ The numbers that are used for counting are called **natural numbers**.
These are $\{1, 2, 3, \dots\}$
- ✱ The *natural numbers* and *zero* are called **whole numbers**.
These are $\{0, 1, 2, 3, \dots\}$
- ✱ The numbers that consists of zero, the positive, and the negative numbers are called **integers**.
These are $\{\dots-3, -2, -1, 0, 1, 2, 3, \dots\}$
- ✱ The **absolute value** of a number is the number regardless of its sign.



What to do after (Posttest)

You have just learned what is necessary to hurdle this **Posttest**.

Directions: Read the following items carefully. Then choose the letter of the best answer from the selections that follow.

1. The number 38 is _____.
 - A. a whole number.
 - B. a natural number.
 - C. an integer.
 - D. All of the above

2. Which of the following statements is true about the number zero?
- i Zero is a whole number.
 - ii Zero is a natural number.
 - iii Zero is an integer.
- A. i only
B. i and ii only
C. i and iii only
D. All of the above
3. Which of the following statements is true about natural numbers?
- A. Natural numbers are counting numbers.
B. A whole number is a natural number.
C. Any number is a natural number.
D. Natural numbers start with 0.
4. What is true about the numbers $-1, 0, 3, -6, 9, 12$?
- A. They are natural numbers.
B. They are whole numbers.
C. They are integers.
D. All of the above.
5. Which of the following are integers?
- A. 1
B. 0
C. -1000
D. All of the above
6. Integers could be
- A. Positive B. negative C. zero D. All of these

7. All of the following are integers except _____.
- A. 0, 3, 6, -2, 7
 B. 4, 6, 8, -2, -10
 C. 0.6, 27, 100, -250
 D. 300, 27, 9, -6, -17
8. The opposite of -69 is _____.
- A. -96 B. $\frac{1}{69}$ C. 69 D. $\frac{1}{69}$
9. 30 kilometers below sea level is represented as a signed number as _____.
- A. $+30$ B. $+60$ C. -30 D. $+90$
10. Suppose we consider 12:00 noon as 0 hour, what time is $+3$ hours? _____.
- A. 3:00 p.m. B. 5:00 p.m. C. 6:00 p.m. D. 15:00
11. Which of the following is an expression of absolute value?
- A. (-15) B. $\{-15\}$ C. $|-15|$ D. $[-15]$
12. The expression $|-3| + |22|$ is equal to _____.
- A. -25 B. -19 C. $+19$ D. 25
13. Twice the absolute value of -12 is
- A. -24 B. 24 C. -12 D. 12
14. Consider 12:00 noon as 0 hour. How is 9:00 a.m. expressed as a signed number?
- A. $+9$ B. $+3$ C. -3 D. -9
15. Earl deposited PHP4,000.00 in a bank. Express this as a signed number
- A. $+4000$ B. -4000 C. $+2000$ D. -2000

 Answer Key on page 28

 ANSWER KEY

Pretest page 2

Pretest		Review Material for the Pretest
1.	D	The numbers 28 is considered a natural number, a whole number, and an integer.
2.	B	Zero is not a natural number. It cannot be used for counting.
3.	A	Natural numbers are used for counting.
4.	B	0, 3, 6, 9, 12 are whole numbers.
5.	D	The integers consist of all positive numbers, all negative numbers, and 0.
6.	D	Integers could be positive, negative, or 0.
7.	A	The numeral 0.5 is NOT an integer.
8.	B	+25 and -25 are opposites.
9.	D	'Above sea level' is represented by a positive number.
10.	B	Starting at 12:00 noon, add 5 hours and this results to 5:00.
11.	C	The symbol $ $ represents <i>absolute value of a number</i> .
12.	A	Adding the absolute values of two numbers is the same as adding the numbers without their signs.
13.	B	Twice an absolute value of another number means multiplying the number without its sign by 2.
14.	B	As in no. 10, going clockwise means a positive number.
15.	C	Depositing money implies a positive number.

Answer Key to the Activities and Self-Check Exercises

Lesson 1 Self-Check 1 page 8

A. 1. N 2. N

B. 1. W 2. W 3. W 4. W 5. W

Activity 2.1 page 9

A. 2. Left hand up

3. Feet together
4. Smile
5. Open both hands
6. Bend your body to the right
7. Turn 90 degrees to the left.

B. 2. South 3. Bad 4. Withdraw 5. Dishonest 6. Lazy

Page 11. $A \leftrightarrow -1$, $B \leftrightarrow -2$, $C \leftrightarrow -3$, $D \leftrightarrow -6$, $E \leftrightarrow -7$

These numbers are opposites of 1, 2, 3, 6, and 7.

You find positive, negative, and 0 numbers.

Page 12. The opposite of -8 is $+8$.

The opposite of 7 is -7 .

The opposite of 0 is itself.

Activity 2.2 page 13

1. $+50$ You go south 50 kilometers (-50)
2. -50 Sixty feet above sea level $+50$
3. $+2$ Going down 2 floors of a building (-2)
4. $+1000$ Spending P1000.00 (-1000)
5. -525.00 Earning P525.00 $+525.00$
6. $+3$ Losing 3 pounds (-3)
7. $+20$ 20 degrees below freezing point (-20)

Lesson 2 Self-Check 2 page 14

- A.
1. Positive
 2. Close the door.
 3. Hop to the left.
 4. 200 meters backward.
 5. Turning 90 degrees to the left.

- B. 1. +36 2. +1000.00 3. +15 4. +33 5.

Page 15. A number, say x , is greater than another number, say y , when it is found at the right of the second number on a number line. We say $x > y$ if x is to the right of y .

Activity 2.3 page 17 A. 1. $>$ 2. $>$ 3. $<$ 4. $>$ 5. $>$
6. $<$ 7. $<$ 8. $<$ 9. $<$ 10. $<$

- B. 1. -8, -5, 0, 1, 4, 12
2. -57, -15, -10, 0, 18, 22
3. -45, -30, -16, -12, -7, 0, 4
4. -60, -33, -13, -1, 0, 1, 22, 51
5. -28, -19, -12, -2, 4, 10, 33, 75

- C. 1. 23, 12, 4, -5, -12, -18
2. 42, 38, 30, -35, -40, -57
3. 45, 14, 0, -12, -17, -26, -30
4. 51, 22, 11, 0, -1, -13, -23, -33
5. 52, 31, 12, 4, -2, -16, -20, -27

Lesson 3 Self-Check 3 page 18

A. 1. $>$ 2. $>$ 3. $<$ 4. $>$

- B. 1. -58, -14, -8, 0, 1, 3, 26
2. -45, -18, -3, 0, 36, 100
3. -200, -120, 0, 1, 8, 150
4. -78, -26, 15, 58, 64, 95
5. -92, -10, 0, 11, 25

- C. 1. 24, 3, 1, -18, -26, -58
2. 100, 36, 33, 0, -18, -23
3. 100, 150, 8, 1, 0, -200
4. 78, 64, 58, 15, -15, -26
5. 63, 0, -10, -11, -15, -91

Page 18 Try this for a change!: $9567 + 1085 = 10,652$

Page 19

- A. 3, 3. The distances are the same.
B. 6, 6. They are the same.

Lesson 4 Self-Check 4 page 21

A. 1) 19 2) 35 3) 29 4) 56 5) 91

B. 1) 38 2) 60 3) 94 4) 72 5) 37

Posttest page 22

- | | | | | | |
|----|---|-----|---|-----|---|
| 1. | D | 6. | D | 11. | C |
| 2. | C | 7. | C | 12. | D |
| 3. | A | 8. | C | 13. | B |
| 4. | C | 9. | C | 14. | C |
| 5. | A | 10. | A | 15. | A |

END of MODULE

Bibliography

Fair, J. & Bragg, S. C. (1990). *Algebra 1*. Englewood Cliffs, New Jersey: Prentice Hall.

Fuller, G. (1977). *College algebra*. (4th ed.) New York: Van Nostrand Company.

Charles, R. I. & Thompson, A. G. (1996). *Secondary mathematics: An integrated approach*. USA: Addison-Wesley.

Dossey, J. A. & Vonder E. B. (1996). *Secondary mathematics: An integrated approach*. USA: Addison-Wesley.