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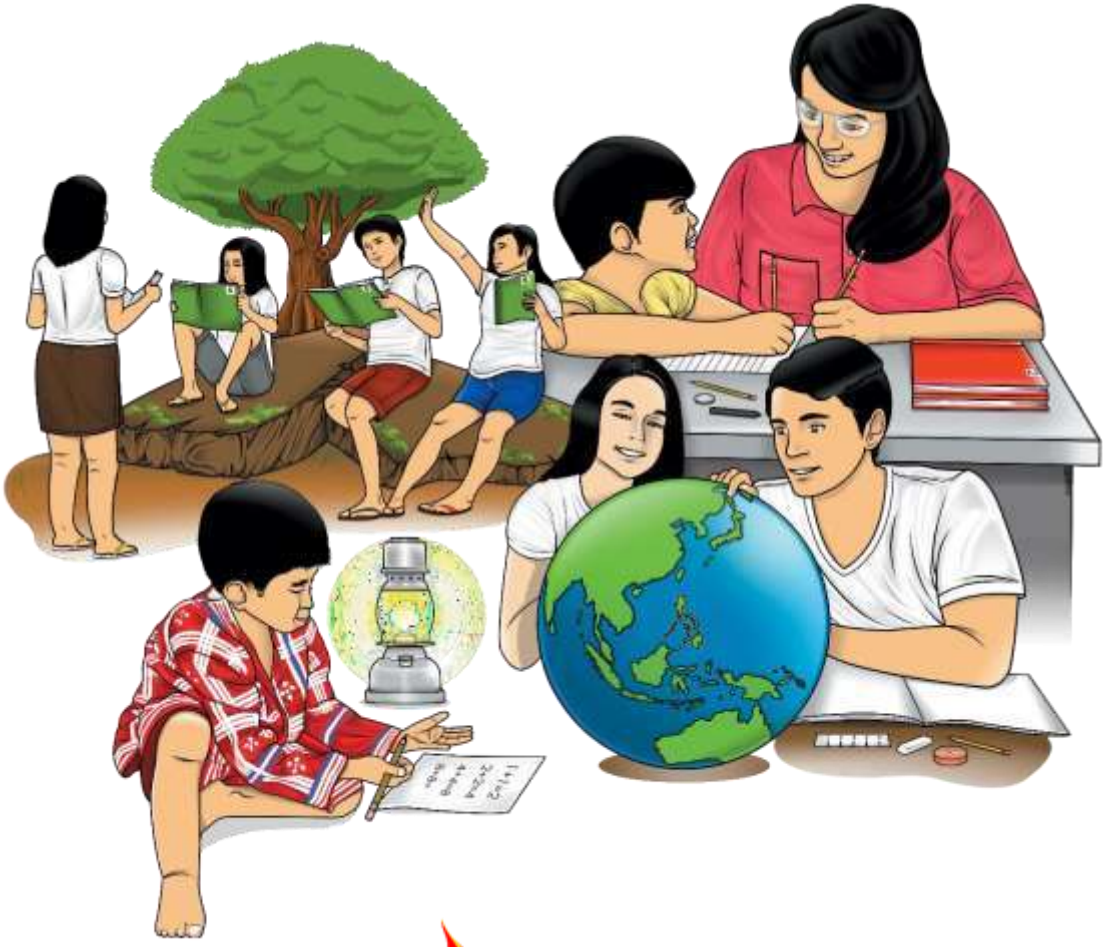
DEPARTMENT OF EDUCATION

Mathematics

Quarter 1 – Module 3:
Absolute Value and Operations On Integers



ALTERNATIVE DELIVERY MODE
ADM

Subject Area – Grade Level
Self-Learning Module (SLM)
Quarter 1 – Module 3: Absolute Value And Operations of Integers
First Edition, 2020

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Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by- step as you discover and understand the lesson prepared for you.

Pre-test are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module, or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teachers are also provided to the facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. Read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.

What I Need to Know

This module was designed and written with you in mind. It is here to help you master the absolute value and operations on integers. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

The module is divided into five lessons, namely:

- Lesson 1 – Representing Absolute Value of a number on a number line
- Lesson 2 – Addition of Integers
- Lesson 3 – Subtraction of Integers
- Lesson 4 – Multiplication of Integers
- Lesson 5 – Division of Integers

After going through this module, you are expected to:

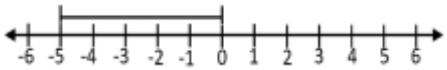
1. represent absolute value of a number on a number line;
2. find the sum of integers and solve problems involving addition of integers;
3. find the difference of integers and solve problems involving subtraction of integers;
4. find the product of integers and solve problems involving multiplication of integers;
5. find the quotient of two integers and solve problems involving division of integers.

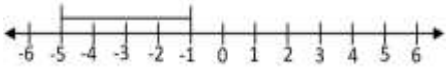
What I Know

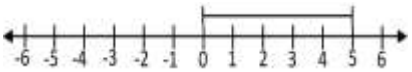
Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. It represents the distance of a number on a number line.
   A. Absolute Value
   B. Integers
   C. Rational Number
   D. Scientific Notations

2. Which of the following represents the absolute value of 5?

A. 

B. 

C. 

D. 

3. What is the absolute value of 34?
   A. -3 B. 34 C. 0 D. -34 and 34

4. What is the sum of -4 and -6?
   A. 2 B. 10 C. -10 D. -24

5. Find the sum of 21 and -15.
   A. 6 B. 36 C. -6 D. -36

6. What will you get when you combine -14, -9 and 35?
   A. 12 B. 58 C. -12 D. -58

7. Find the difference of -8 and -15.
   A. 7 B. -7 C. -13 D. -23

8. What is the difference between 20 and -9?
   A. 11 B. 29 C. -11 D. -29

9. Find the difference between a mountain that has an altitude of 3486 feet and a valley that is 139 feet below sea level.
   A. 3 265 B. 3 347 C. 3 437 D. 3 625

10. Find the product of -5 and 9.
    A. 4 B. 14 C. – 5 D. - 45

11. Perform the indicated operation: (10) (-2) (3) (-1)
    A. -10 B. -16 C. 13 D. 60

12. To be qualified as an encoder, one must be able to type at least 45 words per minute. How many words must be encoded in 15 minutes in order to qualify?
    A. 635 B. 655 C. 675 D. 685

13. What is the quotient of -50 and -10?
    A. 5 B. 40 C. -5 D. -60

14. Perform the indicated operation: -72 ÷ 9
    A. 8 B. 63 C. -8 D. -63

15. Find the quotient of -40 ÷ (-8)
    A. 5 B. 32 C. -5 D. -32

Lesson 1 Representing Absolute Value Of A Number On A Number Line

What's In

In your previous lesson, you learned that the subsets of real number can be represented using a number line wherein zero is the center of a number line. The numbers having the same distance from 0 on a number line but are in opposite directions are called opposites. Let's check your learnings!

A. Identify the opposite of the following numbers.

1. 10 = _____
2. 45 = _____
3. 50 = _____
4. 67 = _____
5. 96 = _____
6. -18 = _____
7. -27 = _____
8. -84 = _____
9. -90 = _____
10. –99 = _____

Notes to the Teacher

This lesson focuses on the relationship between absolute value and distance. Point out to students that the absolute value of a number as a measure of distance will always be positive or zero since it is simply a magnitude, a measure. Students should realize the importance of the absolute value of a number in context such as transportation, weather, statistics and others.

What's New

Some situations can represent integers. Complete the table by giving the appropriate term.

Situation	Negative	Zero	Positive
Time	Before		
Business		break even	
Elevation			above sea level
Game	loss		
saving account	withdrawal	no change	

What is It

The **absolute value** of a number is the distance of a number from zero. Remember distance itself is always positive. The absolute value of a number n is written as $|n|$.

- **If x is a positive integer, then the absolute value of x is x.**

  In symbol: $|x| = x$, if $x > 0$

  Example:

  $|7| = 7$ ⟶ *since 7 is a positive integer, then the absolute value of 7 is 7.*

- **If x is equal to zero, then the absolute value of x is x.**

  In symbol: $|x| = x$, if $x = 0$

  Example:

  $|0| = 0$ ⟶ *since 0 is equal to 0, then the absolute value of 0 is 0.*

- **If x is a negative integer, then the absolute value of x is the opposite of x.** In symbol: $|-x| = x$, if $x < 0$

  Example:

  $|-10| = 10$ ⟶ *since -10 is a negative integer, then its opposite integer is 10.*

In writing the absolute value of a number, just write the numerical part.

The absolute value of 5 is 5, in symbol $|5| = 5$

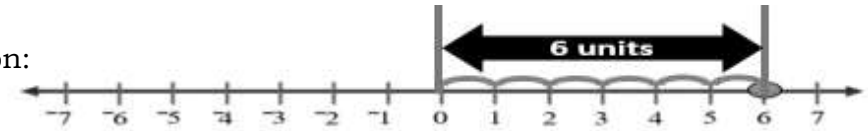
The absolute value of -5 is 5, in symbol $|-5| = 5$

Let's Illustrate!

Represent the following absolute value of a number on a number line.

1. **|6|**

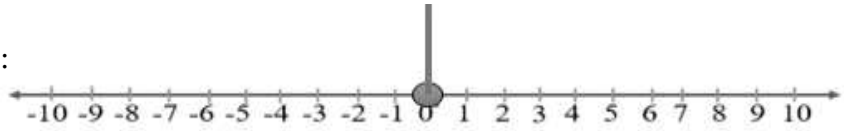
Solution:



Since 6 is 6 units from zero, the absolute value 6 is 6. In symbol, |6| = 6.

2. **|0|**

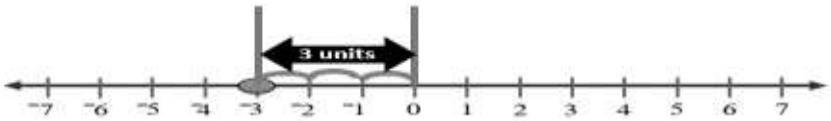
Solution:



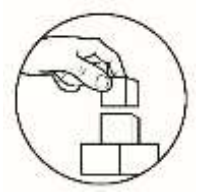
The absolute value of 0 is 0. In symbol, |0| = 0

3. **|−3|**

Solution:



Since -3 is 3 units from zero, the absolute value of -3 is 3. In symbol, |−3|= 3



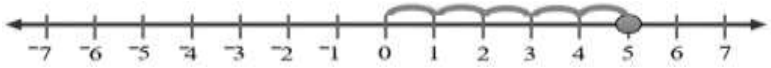
What's More

A. Represent the following value of a number on a number line.

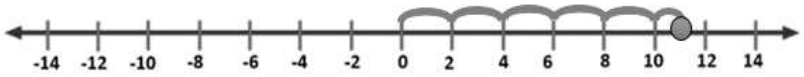
1. |7| =
2. |10| =.
3. |12| =
4. |−6| =
5. |−8| =

B. Give the absolute value of the following number lines.

1.



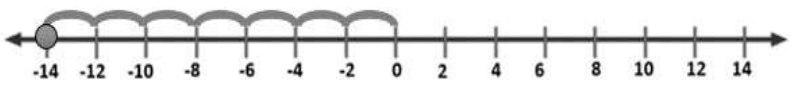
2.



3.

4.

5.

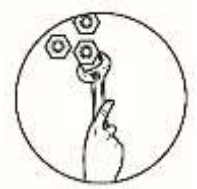


What I Have Learned

To sum it up, let us complete the statements. Choose your answer from the box that best completes each of the statements below.

$\|n\|$	**Absolute value**	**zero**
positive	**Distance**	

The **1.**_____ of a number is the **2.** _____ of a number from **3.**_____. Remember distance itself is always **4.** _____. The absolute value of a number n is written as **5**._____.



What I Can Do

Here is another activity where you can apply what you learned about representing absolute value of a number on a number line.

A. Write the absolute value that represents the situation.

Example: A gain of 45 m _____ $|45| = 45$ _____

1. A loss of 5 lb. _____
2. 350 ft. below sea level _____
3. An elevation of 1 050 ft. _____
4. Php 2, 000 deposit in the bank _____
5. A profit of Php 50.00 _____

B. Solve the following problem involving absolute value.

1. Jacob's credit score is 490. What is the absolute value of 490? _____
2. Thomas is 245 feet below sea level. What is the absolute value of the number of feet he is above sea level? _____

Lesson 2 Addition of Integers

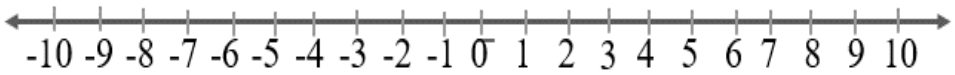
What's In

In the previous lesson you have learned that the absolute value of a number is the distance of a number from zero. Let's check your learning!

Give the absolute value of the following numbers.

1. |349| =
2. |245| =
3. |0| =
4. |-97| =
5. |-183| =

You also have learned that integer is a set of numbers consisting of zero, the positive natural numbers and their additive inverses which is the negative numbers.



Notes to the Teacher

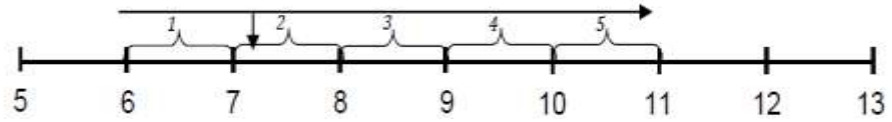
This lesson is a review and deepening of the concept of addition of integers. Keep in mind that the definitions for the operations on integers must retain the properties of the same operations on whole numbers or fractions. In this sense, the operations are merely extended to cover a bigger set of numbers. We present here two models for addition that have been used to represent addition of the whole numbers.

What's New

Study the following examples:

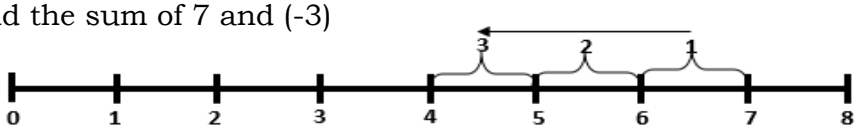
A. Addition Using Number Line

1. Use the number line to find the sum of 6 & 5.



On the number line, start with point 6 and count 5 units to the right. At what point on the number line does it stop?
It stops at point 11; hence, 6 + 5 = 11.

2. Find the sum of 7 and (-3)



On the number line, start from 7 and count 3 units going to the left since the sign of 3 is negative.
At what point on the number does it stop?
It stops at point 4; hence, (7) + (-3) = 4.

What is It

Operations of integers can be performed using different ways. As to addition of integers, let's make use of signed tiles and the rules.

Addition of Integers Using Signed Tiles

Let + represents +1; − represents -1
Now, when we combine one + with one −, they will cancel each other.
However,
when we combine one + with another +, they will appear as + +.
when we combine one − with another −, they will appear as − −.

Let's Try!

1. Combine + + + + and + + + + +

Since the first 4 tiles are positive; and the next 5 tiles are also positive. Therefore they will appear as. + + + + + + + + +
In symbol: 4 + 5 = 9

2. Combine - - - and - - - -

Since the first 3 tiles are negative; and the next 4 tiles are also negative. Therefore they will appear as - - - - - - -
In symbol: (-3) + (-4) = -7

3. Combine  and 

Since the first 5 tiles are positive and the next 3 tiles are negative, then the 3 positive tiles and 3 negative tiles will cancel; each other. 

Therefore the remaining will appear as 

In symbol: 5 + (-3) = 2

ADDITION OF INTEGERS USING THE RULES:

Rule 1: When the integers have like signs, add the numbers and copy the common sign.

Example:

1. 8 + 5 = 13 → *Notice that 8 is positive and 5 is also positive, they have like signs. So add 8 and 5 then copy the common positive sign. Therefore the answer is positive 13 or 13.*

2. (-10) + (-9) = -19 → *Notice that 10 is negative and 9 is also negative, they have like signs. So add 10 and 9 then copy the common negative sign. Therefore the answer is negative 19 or -19.*

Rule 2: When the integers have unlike signs, subtract the numbers and use the sign of the number with the greater absolute value.

Example:

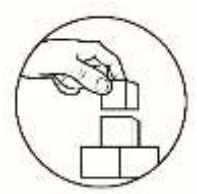
1. (-2) + 4 = 2 → *Notice that 2 is negative while 4 is positive, they have unlike signs. So subtract 2 from 4 then copy the sign of 4 since it has the greater absolute value. Therefore the answer is positive 2 or 2.*

Let's do more!

a. 38 + (-20) = (38 - 20) → *Subtract the numbers*
= 18 → *Since the sign of the number with the greater absolute value is positive, the answer is positive.*

b. (-42) + 16 = (42 - 16) → *Subtract the numbers*
= -26 → *Since the sign of the number with the greater absolute value is negative, the answer is negative.*

c. -14 + 22 + (-16) + 8
= -14 + (-16) + 22 + 8 - *Combine the numbers with like signs*
= -30 + 30 - *Subtract the numbers with unlike signs.*
= 0



What's More

Add the following integers.

1. (-5) + (-11) =	5. -8 + 6 =	9. (50) + (-13) + (-12) =
2. (6) + (-9) =	6. (18) + (-11) + (3) =	10. (-100) + (48) + 49 =
3. -4 + (-4) =	7. (-9) + (-19) + (-6) =	
4. 7 + (-6) =	8. (-4) + (25) + (-15) =	

What I Have Learned

To sum it up, let us complete the statements. Choose your answer from the box that best completes each of the statements below.

different	add	positive
subtract	zero	negative

1. When the signs are the same, _____ and keep the sign.
2. When the signs are _____, subtract and use the sign of the number with the greater absolute value.
4. If we add two same numbers with different signs then the answer is equal to _____.
5. The sum of two negative integers is a _____ integer.
6. The sum of two positive integers is a _____ integer.

What I Can Do

A. Solve the following problems.

1. Mrs. Reyes charged P3,752.00 worth of groceries on her credit card. Find her balance after she made a payment of P 2,530.00.

2. In a game, Team Azcals lost 5 yards in one play but gained 7 yards in the next play. What was the actual yardage gained by the team?

Lesson 3 Subtraction of Integers

What's In

In your previous lesson, you have learned how to add integers. There are rules you need to follow.

1. When the signs are the same, ADD and keep the sign.
2. When the signs are different, SUBTRACT and use the sign of the number with the greater absolute value.

Make it a try!

Add the following integers:

1. 11 + 9 = _____
2. (- 7) + (- 4) = _____
3. 15 + (- 7) = _____
4. (-23) + 5 = _____

Notes to the Teacher

This lesson is a continuation of lesson 2 in the sense that mastery of the law of signs in addition of integers makes subtraction easy for the learners. Emphasis must be given on how the law of signs in addition is connected to that of subtraction.

What's New

Exactly!

Fill the blanks with the correct number that will make it exact.

1. ____ - (-10) = 42
2. -11 - ____ = 1
3. -2 - ____ = -5
4. ____ - 7 = -27

What is It

Now, let us start our discussion with the rules in subtracting integers.

Subtraction Rule

-To subtract two integers, add the opposite or additive inverse of the subtrahend to the minuend. That is, if ***a*** and ***b*** are any two integers, then a – b = a + (-b). Then, follow the rules for addition of integers.

1. Keep Change Change (KCC)

- **K**eep the 1st integer the same
- **C**hange the subtraction sign to addition
- **C**hange the sign of the second integer

2. Follow the rules for addition

- When the signs are the same (similar sign), ADD and keep the sign.
- When the signs are different (different sign), SUBTRACT and copy the sign of the number with the greater absolute value.

Recall: + tile represents +1
– tile represents -1

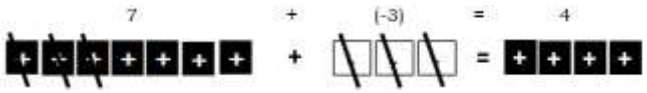
Examples:

1. **7 – 3** = _____

Keep Change Change

Follow rules for addition

(*Since unlike sign, subtract the integers then copy the sign of the number with the greater absolute value.)*



2. **4 – 5** = _____

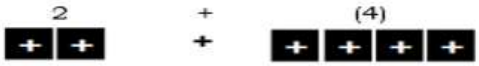
Keep Change Change

Follow rules for addition

(Since unlike sign, subtract the integers then copy the sign of the number with the greater absolute value.)

3. **2** – (**–4**) = _____

Keep Change Change



Follow rules for addition

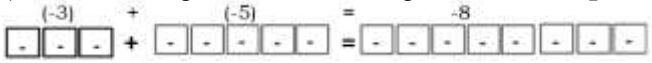
(Since like sign, add the integers then keep the sign

4. (**–3**) – (**5**) = _____

Keep Change Change

Follow rules for addition

(Since like sign, add the integers then keep the sign)

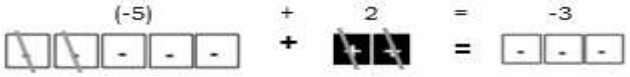


5. (**–5**) – (**–2**) = _____

Keep Change Change

Follow rules for addition

(Since unlike sign, subtract the integers then copy the sign of the larger number)



6. Find the difference in altitude between a mountain 3 900 feet high and a valley 785 feet below sea level.

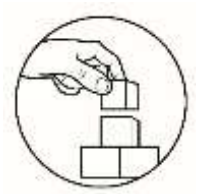
Solution:

Land that is below sea level is considered to have negative altitude. Hence, the valley is said to have an altitude of -785 feet. The difference in altitudes between the mountain and the valley is found by subtracting -785 ft. from 3 900 ft.

3 900 ft. – (-785 ft.)

3 900 ft. + 785 ft. = 4 685 ft.

The difference in altitude between a mountain and valley below sea level is 4 685 ft.



What's More

A. Subtract the following integers.

1. 16 - 12 =
2. 20 - 16 =
3. 19 - 23 =
4. (-3) – (-4) =
5. 19 – (-7) =
6. (-8) – 10 =
7. -6 - 5 =
8. (-10) – (12) =
9. (−21) – (−5) =
10. 11 – (-5) =

B. Find the missing number in each subtraction sentence.

1. ☐ – (-5) = -9
2. -12 – ☐ = 0
3. 29 – ☐ = -42
4. ☐ – 4 = 15
5. -7 – ☐ = -12

What I Have Learned

To sum it up, let us complete the statements. Choose your answer from the box that best completes each of the statements below.

different	keep	addition
greater	change	the same

Rules for Subtracting Integers

1. _____the 1st integer the same
2. Change the subtraction sign to _____
3. _____ the sign of the second integer.
4. When the signs are _____, add and keep the sign.
5. When the signs are _____, subtract and copy the sign of the number with the _____ absolute value.

What I Can Do

Here is another activity that lets you apply what you learned about subtracting integers by doing the following operations.

Solve the following problems.

1. Maan deposited P53, 400.00 in her account and withdraw P19, 650.00 after a week. How much of her money was left in the bank?

2. If Pythagoras, the Greek mathematician, was born in 582 BCE and died on his birthday in 497 BCE, how old was he when he died?

Lesson 4

Multiplication of Integers

What's In

We will learn about the multiplicand and multiplier. The number to be multiplied is called the **multiplicand.** The number with which we multiply is called the **multiplier.** The numbers to be multiplied are called **factors.**

Example: Multiply 20 by 2

20 → Multiplicand
x 2 → Multiplier
40 → Product

} factors

The result obtained is called **product.**

Notes to the Teacher

The repeated addition model for multiplication can be extended to multiplication of two integers in which one of the factors is positive. However, for products in which both factors are negative, repeated addition does not have any meaning. Hence multiplication of integers will be discussed in two parts: the first part looks into products with at least one positive factor, while the second studies the product of two negative integers.

What's New

Consider the given number patterns. Then copy and complete the multiplication table.

x	4	3	2	1	0	-1	-2	-3	-4
4	16	12	8	4	0	-4	-8	-12	-16
3	12	9	6	3	0	-3	-6	-9	
2	8	6	4	2	0				
1	4	3	2	1	0				
0									
-1						1	2	3	4
-2									
-3									

Express the multiplication rules, with (+) stands for a positive number, and (-) stands for a negative number, in the following cases.

a. (+) (+)
b. (-) (-)
c. (-) (+)
d. (+) (-)

What is It

We learned that with whole numbers, multiplication is repeated addition. Now, let us start our discussion on the rules in multiplying integers.

Rules in Multiplying Integers

1. When you multiply two numbers with the same signs, the product is **positive.**

   (+)(+) = (+) (-)(-) = (+)

2. When you multiply two numbers with different signs, the product is **negative.**

   (+)(-) = (-) (-)(+) = (-)

3. Any number multiplied by 0 gives a product of 0.

   (0) (any number) = 0 (any number)(0) = 0

The following examples illustrate further how integers are multiplied.

Example 1. Multiply (6) (9)

Solution: (6) (9) = 54

The product is positive because the signs of the factors are the same.

Example 2: Multiply (-7) (-6)

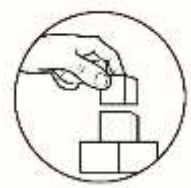
Solution: (-7) (-6) = 42

The product is positive because the signs of the factors are the same.

Example 3: Multiply (-8) (5)
Solution: (-8) (5) = -40
The product is negative because the signs of the factors are different.

Example 4. Multiply (5) (-2)
Solution: (5) (-2) = -10
The product is negative because the signs of the factors are different.

Example 5: Multiply (0) (10)
Solution: (*0) (10) = 0*
The product is zero because any number multiply by zero gives a product of zero.



What's More

A. Find the product of the following integers.

1. -6 (-4) =
2. -11 (20) =
3. (5) (-30) =
4. -8 (0) =
5. (-12) (-8) =

B. Write the missing factor on the blank to complete each sentence.

1. (-3) • _____ = -15
2. (-40) = -1 • _____
3. _____ • 8 = -16
4. (-7) (-3) • _____ = -21
5. (-15) • _____ = 0

What I Have Learned

Fill in the blank to make a true statement.

1. When you multiply two numbers with the similar signs, the product is _____.
2. When you multiply two numbers with _____ signs, the product is negative.
3. When you multiply any number by zero, the product is _____.
4. An even number of negative factors will produce a product that is _____.
5. An odd number of negative factors will produce a product that is _____.

What I Can Do

Solve the following problems.

1. Cheska has twenty P5 coins in her coin purse. If her niece took 5 of the coins, how much has been taken away?

2. Jim reads 3 newspaper articles every day, and Jessica reads 5 times more than Jim does. How many newspaper articles does Jessica read every day?

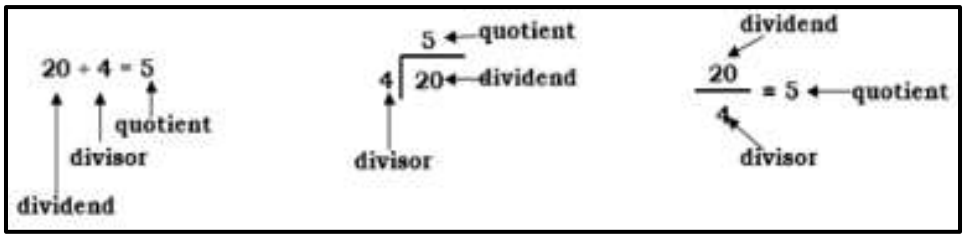
Lesson 5 Division of Integers

What's In

In this module, you will learn how to divide integers. There are terms that are special to division that we should be familiar with.

- Quotient – the answer when we divide
- Dividend – the number being divided
- Divisor – the number being divided into something

Example:



What's New

Answer the following questions:

1. What is (51) ÷ (3)?
2. What is (-51) ÷ 3?
3. What is 51 ÷ (-3)?
4. What is (-51) ÷ (-3)?
5. What is 0 ÷ 51?

Notes to the Teacher

This is a short lesson because the sign rules for division of integers are the same as with the multiplication of integers. Division is to be understood as the reverse operation of multiplication, hence making the rules the same with respect to the sign of the quotient.

What is It

We have learned that Subtraction is the inverse operation of Addition. In the same manner, Division is the inverse operation of Multiplication. Now, let us start our discussion on division of integers.

Rules in dividing integers

1. When two numbers with the same sign are divided, the quotient is always positive. $(+) \div (+) = +$ $(-) \div (-) = +$
2. When two numbers with different signs are divided, the quotient is always negative. $(+) \div (-) = -$ $(-) \div (+) = -$
3. The rules for dividing zero by a nonzero number and for division by zero still hold.

$$\frac{(0)}{(\text{nonzero number})} = 0 \qquad \frac{(\text{any number})}{(0)} = \text{undefined}$$

Example 1: Find the quotient of 45 ÷ 5.

Solution:

Since division is the inverse of multiplication, determine what number multiplied by (5) produces (45).

Hence (5) (9) = 45

Therefore: 45 ÷ 5 = 9

Example 2: Find the quotient of (-51) ÷ (-3).

Solution:

Since division is the inverse of multiplication, determine what number multiplied by (-3) produces (-51).

If we ignore the signs for the meantime, we know that

(3) (17) = 51

We also know that in order to get a negative product, the factors must have different signs. Hence (-3) (17) = -51

Therefore: (-51) ÷ (-3) = 17

Example 3. What is (-57) ÷ 19?

Solution: 19 x 3 = 57

Hence 19 x (-3) = -57

Therefore: (-57) ÷ 19 = -3

Example 4: Show why 273 ÷ (-21) = -13

Solution: (-13) x (-21) = 273

Therefore: 273 ÷ (-21) = -13

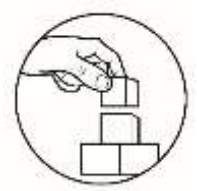
Example 5: Tom played golf at an amusement park. His scores on the first five holes were -1, +1, -2, -1and -2. What was his mean (average) scores for these holes?

Solution:

To find the mean, divide the total score by the number of holes.

$$\frac{-1+1+(-2)+(-1)+(-2)}{5} = \frac{-5}{5} = -1$$

Tom's mean score for the first five holes was -1.



What's More

A. Find each quotient.

1. (63) ÷ 9 =
2. (-88) ÷ (-8) =
3. (125) ÷ (-5) =
4. (-144) ÷ (16) =
5. 0 ÷ (50) =

B. Write the missing number in each .

1. $\frac{42}{\square} = -2$
2. $\frac{\square}{8} = -8$
3. $\frac{\square}{22} = 0$
4. $\frac{-40}{\square} = 8$
5. $\frac{\square}{-7} = 13$

What I Have Learned

Fill in the blank with word/s to make each statement true.

1. When to numbers with the same signs are divided, the quotient is always _____.
2. The quotient of two integers with different signs is _____.
3. If the quotient of A and B is negative and A is a negative integer then B is a _____ integer.

4. If the quotient of A and B is negative and A is a positive integer then B is a _____ integer.
5. If A is zero and B is any nonzero integer, then the quotient is _____.

What I Can Do

Solve the following problems:

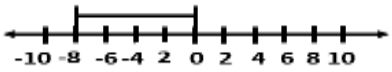
1. Vergara's store earned P8750 a week. How much is its average earning in a day?

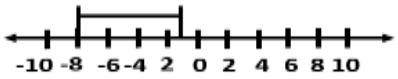
2. A father has 976 sq. meters lot, he has to divide it among his 4 children. What is the share of each child?

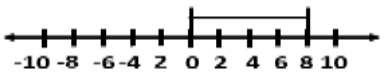
Assessment

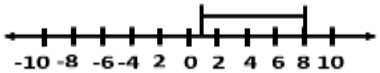
Multiple Choice. Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.

1. It represents the distance of a number on a number line.
   A. Absolute Value
   B. Integers
   C. Rational Number
   D. Scientific Notations
2. Which of the following represents the absolute value of -8?

A. 

B. 

C. 

D. 

3. What is the absolute value of 56?
   A. -56 B. 0 C. 56 D. -56 and 56
4. Find the sum of -24 and 46.
   A. -22 B. -70 C. 22 D. 70
5. What is the sum of -51 and -31?
   A. -82 B. -20 C. 20 D. 82
6. If a car has 3 gallons of gas in the tank and you add 8 more, how much is in the tank?
   A. -11 B. 5 C. 11 D. 24
7. Find the difference of 82 and -41.
   A. -123 B. -41 C. 41 D. 123
8. What is the difference between -57 and -35?
   A. -92 B. -22 C. 22 D. 92

9. There is a wooden board 24 inches long and 8 inches is cut off, how many inches of board do you have left?
   A. -16 B. 3 C. 16 D. 32
10. Find the product of -21 and -3.
   A. -63 B. -24 C. -7 D. 63
11. Perform the indicated operation: (11) (3) (-5).
   A. -165 B. -145 C. 145 D. 165
12. Tom drives his car 20 miles round trip to work every day. How many total miles he drive to and from work in 5 days?
   A. -100 miles B. -4 miles C. 4 miles D. 100 miles
13. Find the quotient of -72 ÷ (9)
   A. -63 B. -8 C. 8 D. 81
14. Perform the indicated operations: (-52) ÷ 4.
   A. -48 B. -13 C. 13 D. 48
15. Oliver removed 56 marbles from his marble box and put them into 8 equal groups. How many marbles were in each group?
   A. -7 B. -64 C. 7 D. 64

Additional Activities

"Who is the father of Algebra?"

To find the answer, perform the indicated operation of the following and write the letter of the problems in the box corresponding to the given equation.

I. |-5+3|	**Z. 36 ÷ 3**
M. -25 ÷(-5)	**A. -6 + (-2)**
A. (12)(2)	**R. (-6)(12)**
K. 7 – (-4)	**L. -10 + (-10)**
W. (-4)(-7)	**H. -3 – (-1)**
I. (-12)÷(12)	

-8	**-20**	**11**	**-2**	**28**	**24**	**-72**	**-1**	**12**	**5**	**2**

Answer Key

ABSOLUTE VALUE

What I Know

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

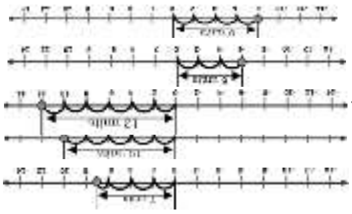
What's In

1. -10
2. -45
3. -50
4. -67
5. -96
6. 18
7. 27
8. 84
9. 90
10. 99

Situation	Negative	Zero	Positive
Time	before	now	after
Business	loss	break even	gain
Elevation	below sea level	sea level	above sea level
Game	loss	tie	win
Saving Account	withdrawal	no change	deposit

What's More

A.
1.
2.
3.
4.
5.



B.
1. 5
2. 11
3. -9
4. -12
5. -14

What I Have Learned

1. absolute value
2. distance
3. zero
4. positive
5. $|n|$

What I Can do

A.
1. $|-5| = 5$
2. $|-350| = 350$
3. $|1050| = 1050$
4. $|2000| = 2000$
5. $|50| = 50$

B.
1. 490
2. 245

ADDITION OF INTEGERS

What's In

1. 349
2. 245
3. 0
4. 97
5. 183

What's More

1. -16
2. -3
3. -8
4. 1
5. -2
6. 10
7. -34
8. 6
9. 25
10. -3

What I Have Learned

1. Add
2. Different
3. Zero
4. Negative
5. positive

What I Can Do

1. P1222
2. 2 yards

SUBTRACTION OF INTEGERS

What's In

1. 20
2. -11
3. 8
4. -18

What's New

1. 32
2. -12
3. 3
4. -20

What's More

A.
1. 4
2. 4
3. -4
4. 1
5. 26
6. -18
7. -11
8. -22
9. -16
10. 16

B.
1. -14
2. -12
3. 71
4. 19
5. 5

What I Have Learned

1. keep
2. addition
3. change
4. the same
5. different
6. greater

What I Can Do

1. Php33, 750.00
2. 85

MULTIPLICATION OF INTEGERS

What's New

x	4	3	2	1	0	-1	-2	-3	-4
4	16	12	8	4	0	-4	-8	-12	-16
3	12	9	6	3	0	-3	-6	-9	-12
2	8	6	4	2	0	-2	-4	-6	-8
1	4	3	2	1	0	-1	-2	-3	-4
0	0	0	0	0	0	0	0	0	0
-1	-4	-3	-2	-1	0	1	2	3	4
-2	-8	-6	-4	-2	0	2	4	6	8
-3	-12	-9	-6	-3	0	3	6	9	12

What's More

A.	B.
1. 24	1.5
2. -220	2. 40
3.-150	3. -2
4.0	4. -1
5. 96	5. 0

What I Have Learned

A.
1. Positive
2. Different
3. Zero
4. Positive
5. Negative

What I Can Do

1. 25
2. 15

DIVISION OF INTEGERS

What's New

1. 17
2. -17
3. -17
4. 17
5. 0

What's More

A.	B.
1. 7	1. -21
2. 11	2. -64
3. -25	3. 0
4. -9	4. -5
5. 0	5. -91

What I Have Learned

1. Positive
2. Negative
3. Positive
4. Negative
5. Zero

What I Can Do

1. P1250.00
2. 244 sq. meters

Assessment

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

Additional Activity

AL - KHWARIZMI

References

- Aseron, E, et. Al., 2013. *Mathematics 7 Learner's Material.* 1st ed. 2nd Floor Dorm G, Philsports Complex, Meralco Avenue, Pasig City, Philippines 1600: Department of Education, pp.19-33, 70-75.
- Gamboa, J., 2010. *Elementary Algebra*. 1st ed. Bagong Pook, Lipa City, Batangas 4217: United Eferza Academic Publication,Co., pp.26-49.
- Oronce, O. and Mendoza, M., 2012. *E-Math*. 3rd ed. 856 Nicanor Reyes Sr., St.,Sampaloc, Manila: Rex Book Store, pp.23-60.
- Padua, A., Crisostomo, R., de Sagun, P., Lim-Gabriel, J. and Ong, A., 2013. *Our World Of Math*. 1253 G, Araneta Ave,. Quezon City: Vibal Publishing House, Inc., pp.19-42.
- Wikipedia. 2020. *Main Page*. [online] Available at: <https://en.m.wikipedia.org> [Accessed 5 June 2020].

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