PIVOT 4A

QUARTER 2
Mathematics
G6

MELC -based SLM

DepEd CALABARZON
Curriculum and Learning Management Division

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The Editors

PIVOT 4A Learner's Material
Quarter 2
First Edition, 2020

Mathematics
Grade 6

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Guide in Using PIVOT 4A Learner's Material

For the Parents/Guardians

This module aims to assist you, dear parents, guardians, or siblings of the learners, to understand how materials and activities are used in the new normal. It is designed to provide information, activities, and new learning that learners need to work on.

Activities presented in this module are based on the Most Essential Learning Competencies (MELCs) in Mathematics as prescribed by the Department of Education.

Further, this learning resource hopes to engage the learners in guided and independent learning activities at their own pace. Furthermore, this also aims to help learners acquire the essential 21st century skills while taking into consideration their needs and circumstances.

You are expected to assist the children in the tasks and ensure the learner's mastery of the subject matter. Be reminded that learners have to answer all the activities in their own notebook.

For the Learners

The module is designed to suit your needs and interests using the IDEA instructional process. This will help you attain the prescribed grade-level knowledge, skills, attitude, and values at your own pace outside the normal classroom setting.

The module is composed of different types of activities that are arranged according to graduated levels of difficulty—from simple to complex. You are expected to :

a. answer all activities on separate sheets of paper;

b. accomplish the **PIVOT Assessment Card for Learners on page 37** by providing the appropriate symbols that correspond to your personal assessment of your performance; and

c. submit the outputs to your respective teachers on the time and date agreed upon.

Parts of PIVOT 4A Learner's Material

	K to 12 Delivery Process	Descriptions
Introduction	What I need to know	This part presents the MELC/s and the desired learning outcomes for the day or week, purpose of the lesson, core content and relevant samples. This maximizes awareness of his/her own knowledge as regards content and skills required for the lesson.
	What is new	
Development	What I know	This part presents activities, tasks and contents of value and interest to learner. This exposes him/her on what he/she knew, what he/she does not know and what he/she wants to know and learn. Most of the activities and tasks simply and directly revolve around the concepts of developing mastery of the target skills or MELC/s.
	What is in	
	What is it	
Engagement	What is more	In this part, the learner engages in various tasks and opportunities in building his/her knowledge, skills and attitude/values (KSAVs) to meaningfully connect his/her concepts after doing the tasks in the D part. This also exposes him/her to real life situations/tasks that shall: ignite his/ her interests to meet the expectation; make his/her performance satisfactory; and/or produce a product or performance which will help him/her fully understand the target skills and concepts .
	What I can do	
	What else I can do	
Assimilation	What I have learned	This part brings the learner to a process where he/she shall demonstrate ideas, interpretation, mindset or values and create pieces of information that will form part of his/her knowledge in reflecting, relating or using them effectively in any situation or context. Also, this part encourages him/her in creating conceptual structures giving him/her the avenue to integrate new and old learnings.
	What I can achieve	

This module is a guide and a resource of information in understanding the Most Essential Learning Competencies (MELCs). Understanding the target contents and skills can be further enriched thru the K to 12 Learning Materials and other supplementary materials such as Worktexts and Textbooks provided by schools and/or Schools Division Offices, and thru other learning delivery modalities, including radio-based instruction (RBI) and TV-based instruction (TVI).

WEEK 1

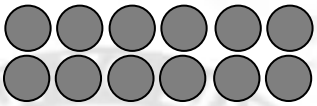
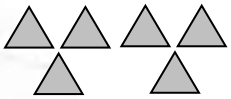
Expressing One Value as a Fraction of another Given their Ratio and Vice Versa

I Lesson

Ratio is a way of comparing **TWO** or more quantities having the same units. The quantities may be separate entities or they may be different parts of a whole. You can write the ratio of a and b in three ways: It can be in word form, colon form and fraction form. The order in which the ration is expressed is very important. The order of the terms in a ration must correspond to the order of objects being compared. In the ratio, a part can be compared to its whole.

After going through this lesson, you are expected to express one value as a fraction of another given their ratio and vice versa. Look at the example below.

Example 1: Compare the number of circles to triangles vice versa.

 to 

Ratio of circles to triangles

Word Form —12 is to 6
Colon Form —12: 6

Fraction Form — $\frac{12}{6}$

Ratio of triangles to circles

Word Form — 6 is to 12
Colon Form —12:6

Fraction Form — $\frac{6}{12}$

If you compare the part to the total number of the shapes, the ratio of the part to the total has the **same meaning as a fraction**. Look at the example below.

Example 2: Compare the **total number of shapes** to number of triangles.

Ratio of total shapes to triangles

Word Form — 18 is to 6
Colon Form —18 : 6

Fraction Form — $\frac{18}{6}$

Ratio of triangles to total shapes

Word Form — 6 is to 18
Colon Form — 6 : 18

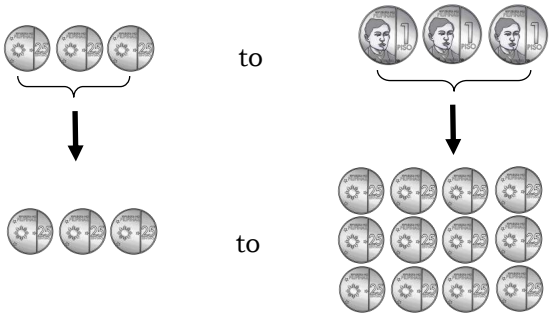
Fraction Form — $\frac{6}{18}$

Even if the ratio is in **fraction form,** you will still say "**eighteen is to six"** or **"six is to eighteen."** Ratio should also be in **simplest form** or lowest form like a fraction. You can express the above example as;

$\frac{18}{6} = \frac{\cancel{6}^{1} \times 3}{\cancel{6}_{1} \times 1} = \frac{3}{1}$ $\qquad$ $\frac{6}{18} = \frac{\cancel{6}^{1} \times 1}{\cancel{6}_{1} \times 3} = \frac{1}{3}$

So the simplest form is $\frac{3}{1}$ and $\frac{1}{3}$.

Example 3: Express the ratio of three-twenty-five centavo coins to ₱ 3.00 coins in colon form.



Since the two quantities have different units, you need to make sure that they must be in the same units to express the right ratio.

Thus in this example you can express ratio of the 2 quantities as **3:12**, since there are **four** 25 centavo coin in each 1 peso coin.

In simplest form, the ratio of three 25 centavo coin to three peso coin or ₱3.00 is **1 is to 4** or **1:4**

Example 4: Express the equivalent ratio of **2/4**

$$\frac{2 \times 2}{4 \times 2} = \frac{\mathbf{4}}{\mathbf{8}} \qquad \frac{2 \times 3}{4 \times 3} = \frac{\mathbf{6}}{\mathbf{12}} \qquad \frac{2 \times 4}{4 \times 4} = \frac{\mathbf{8}}{\mathbf{16}} \qquad \frac{2 \times 5}{4 \times 5} = \frac{\mathbf{10}}{\mathbf{20}}$$

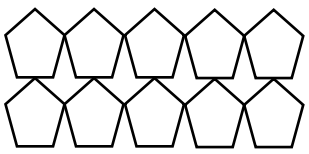
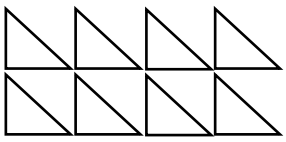
The possible equivalent ratio of **2 is to 4** or **2:4** are; **4:8 , 6:12, 8:16, 10:20.** There are instances that the term of ratio do not have the same units or classifications. This is a special ratio called **rate**. For example, kilometers to an hour.

Example 5: Rom scored 180 points in 5 basketball games. Find the average rate per game.

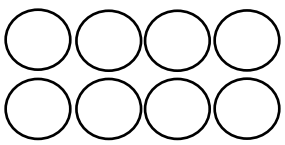
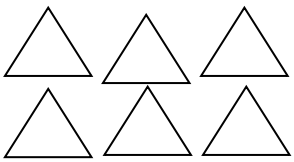
$$\textbf{Rate} = \frac{180 \text{ points}}{5 \text{ games}} = \frac{36 \text{ points}}{1 \text{ game}} = 36 \text{ points per game}$$

D

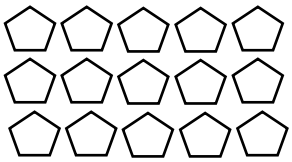
Learning Task 1: Write a ratio of the following in three ways. Write your answer in your notebook.

1)  is to 

Fraction form	Colon Form	Word Form

2)  is to 

Fraction form	Colon Form	Word Form

3)  is to 

Fraction form	Colon Form	Word Form

E

Learning Task 2: Write a ratio of the following in three ways. Write your answer in your notebook.

1) 6 Weeks to 12 days _____ _____ _____
2) 10 decimeters to 10 centimeters _____ _____ _____
3) 4 days to 36 hours _____ _____ _____
4) 4 months to 8 weeks _____ _____ _____
5) 30 seconds to 6 minutes _____ _____ _____
6) 24 girls to 16 boys _____ _____ _____
7) 12 mangoes to 36 fruits _____ _____ _____
8) 2 years to 36 months _____ _____ _____
9) 45 points to 9 games _____ _____ _____
10) 468 students for 9 classrooms _____ _____ _____

Learning Task 3: Write at least three equivalent ratio of the given ratio . Write your answer in your notebook.

1.) 2/4 = _____ = _____ = _____
2.) 5/10 = _____ = _____ = _____
3.) 4/5 = _____ = _____ = _____
4.) 3/9 = _____ = _____ = _____
5.) 2/5 = _____ = _____ = _____
6.) 8/10 = _____ = _____ = _____
7.) 3/5 = _____ = _____ = _____
8.) 2/8 = _____ = _____ = _____
9.) 3/7 = _____ = _____ = _____
10.) 6/8 = _____ = _____ = _____

Learning Task 4: Write the following fraction in word and colon form. Do this in your notebook.

1.) 3/4 = _____ = _____
2.) 5/8 = _____ = _____
3.) 4/7 = _____ = _____
4.) 2/9 = _____ = _____
5.) 6/7 = _____ = _____
6.) 8/13 = _____ = _____
7.) 3/5 = _____ = _____
8.) 9/11 = _____ = _____
9.) 10/11 = _____ = _____
10.) 56/18 = _____ = _____

A

Ratio is a comparison of two quantities which can be written in colon, word or fraction form.

Rate is a comparison of two quantities but may have different units of measures and their ratio has a unit of measure.

Concept of Ratio and Proportion and Different Types of Proportion

WEEK 2

I

Lesson

When two ratios are equal they form a proportion. **Proportion** is a statement of equality between two ratios. There are two terms in the proportion. The first and the last term are called **extremes** while the second and third term are called **means**.

After going through this lesson, you are expected to illustrate and understand the concept of ratio and proportion. Look at the example below.

In the proportion, the cross products of equal ratios are equal.

If $\frac{a}{b} = \frac{c}{d}$, then ad=bc.

Thus, the product if the means is equal to the product of the extremes.

means

a: b = c : d

extreme

Example 1: Tell whether the ratios form a proportion.

Solution: $\frac{3}{4}, \frac{6}{8}$

$\frac{3}{4} \times \frac{6}{8}$ From cross products

$3 . 8 = 4 . 6$ Multiply

$24 = 24$ The two ratios are **proportion** since they are equal.

Example 2: Find the value of x.

$2 : 4 = 3 : x$

$2 . x = 4 . 3$

$\frac{2x}{2} = \frac{12}{2}$

x = 6

The value of **x** is **6**.

Checked: $2 : 4 = 3 : x$

$2 . 4 = 3 . 6$

$\frac{2}{4} \times \frac{3}{6}$

$12 = 12$

The product of the means is equal to the product of the extremes.

There are three types of proportion. These are direct, inverse and partitive proportion.

Example 3: Direct Proportion

There are 120 families in the evacuation center consumed 1500 kilos (kgs) of donated rice for 3 weeks . If there were only 1000 kilos (k) of NFA rice, how long will the families consume this volume of rice?

From the given situation above, you can see that the more kilos of rice there is, the longer it will last for 120 families. This situation is example of **direct proportion.**

Thus, we have;

$$\frac{\text{No. of kilos of rice}}{\text{No. of weeks}} = \frac{\text{No. of kilos of rice}}{\text{No. of weeks}}$$

$$\frac{1500}{3} = \frac{1000}{n}$$

$$1500n = 3000$$

$$n = 2$$

Therefore, there are 1000 kilos of rice consumed in 2 weeks.

Example 4: Inverse Proportion

It takes Robin 20 minutes to ride his bicycle at 20 kph form home to grocery store. To shorten his travel time to 16 minutes for the same distance, how fast should he cycle?

Let the desired speed be x kph.

Speed (kph)	20	x
Time (in minutes)	20	16

The faster the bicycle is driven, the less time is required to reach the destination. So, this is an inverse proportion.

Speed needed to shorten travel time to 16 minutes. → $\frac{x}{20} = \frac{20}{16}$ ← Speed needed to reach a travel time of 20 minutes

Time taken when the speed is 20 kph → ← Time taken when the speed is x kph

$16.x = 20.20$ Get the cross products

$\frac{16x}{16} = \frac{400}{16}$ Divide both sides by 16.

$x = 25$

Answer: Robin should cycle at 25 kph.

Example 5: Partitive Proportion

A glass of jar has 64 chocolates, Pepe, Dave and Rey will share the chocolates in the ratio 1:1:2. How many chocolates will each one of them get?

Understand

A) What is asked?

The number of chocolates that each will get.

B) What are the given facts?

64 chocolates

Chocolates will be shared in the ratio 1:1:2

Plan:

Strategy: Write a partitive proportion to solve the problem.

Solve.

Let n be the number of chocolates each of them will get.

Let 2n be the number of chocolates one of them with two parts will get.

Write the ratio 1:1:2 as n:n:2n.

Adding the numbers; $1 + 1 + 2 = 4$

$n + n + 2n = 64$

$4n = 64$

$n = 16$

Since $2n = 2 \times 16 = 32$, then n:n:2n = 16:16:32.

Answer: Pepe, and Dave will both have 16 chocolates each, while Rey will have 32 chocolates.

Check: Add all the chocolates received by Pepe, Dave and Rey.

$16 + 16 + 32 = 64$

$64 = 64$

D

Learning Task 1: Solve and determine whether each is a proportion or not . Write YES or NO on your notebook.

1.) 2/3 and 4/6 = _____

2.) 6/7 and 24/28 = _____

3) 2/5 and 4/12 = _____

4.) 28/42 and 2/3 = _____

5.) 15/20 and 5/6 = _____

E

Learning Task 2: Solve each proportion. Write your answer in your notebook.

1) 5/12 = 35/ **n** = _____

2) **n**/ 52 = 180/ 120 = _____

3) 18/**n** = 21/28 = _____

4) **n**/4 = 24/6 = _____

5) 10/16 = **n**/56 = _____

Learning Task 3: Identify the type of proportion that the following problems illustrate. Then solve the problems in a piece of paper.

1.) A car is able to travel 210 km in 3 hours. How far can it travel in 5 hours?

2.) Five people can finish painting a wall in 5 hours. If only 2 people are available, how many hours do they have to work to finish the same job?

3.) At 65 km/hr, Alfred can reach home in 50 minutes. At what speed should he drive his car so that he can reach home 10 minutes earlier?

4.) A land area was divided among the three heirs in the ratio 5:2:4. If the largest share was 20 hectares of land, what is the total are of the land?

5.) A certain amount of money is divided among Rio, Kim and Leo in the ratio 5:7:3. If Leo gets Php 24,000.00, how much is the total amount?

A

In direct proportion, when one quantity increases, the other quantity increases at the same rate and vice versa.

In inverse proportion, when one quantity increases , the other quantity decreases vice—versa.

In partitive proportion, a whole is divided into parts that is proportional to the given ratio.

Percentage, Rate and Base

Lesson I

Percent is the ratio that compares a number to 100. You can write percent as a fraction with a denominator of 100. You can used a symbol **%** which is called the percent sign.

After going through this lesson, you are expected to find the percentage, rate, and base or percent in a given problem as well as to solve routine and non-routine problems involving percentage, rate and base.

To understand this lesson well, read and analyze first the short problem below and observe how the idea of Percentage, Rate and Base to solve the problem.

Robin's daily allowance is Php. 40.00. He spends Php. 12.00 for snacks. This is 30% of his daily allowance .

In the situation given above, we can say that: **30%** of **Php. 40.00** is **₱ 12.00.**

In this case, you can now easily identify which is the percentage, the rate, or the base. We let **P** be the percentage, **R** be the rate, and **B** be the base.

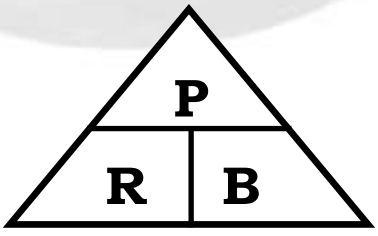
Php 12 is percentage (P) ➡ It is the number or the amount that represents

30% is the rate (R) ➡ It is the number compared to **100.** It usually has either a percent sign (%) or the word "percent" with it.

Php 40.00 is the base (B) ➡ It is the number that represents the whole or the entire amount.

The Techan's triangle can help you remember the three formulas. To find percentage (P) **cover P;** since R and B are next to each other, it means multiplication. To find the base (B), **cover the B**; since P is over R, it means division. And to find rate (R) , **cover R**; since P is over B, it means division.

- P = R x B
- R = P/B
- B = P/R



Where as : **P** = percentage; **R** = Rate; **B** = Base

Finding the Percentage

Example 1: Find 75% of 60.

Using Decimal

75 % x 60 = n

↓

0.75 x 60 = 45

Change the rate to decimal.

Using a Proportion

$\frac{75}{100} = \frac{n}{60}$

$\frac{100n}{100} = \frac{4500}{100}$

n = 45

Think: 75% = $\frac{75}{100}$

Example 2:

There are 250 pupils in a school. If 20% of them are boys, how many boy scouts does the school have?

R = 20%, B = 250; P = ?

Using Decimal

20% x 250 = n

↓

0.20 x 250 = 50

Change the rate to decimal.

Using a Proportion

$$\frac{20}{100} = \frac{n}{250}$$

$$\frac{100n}{100} = \frac{5000}{100}$$

n = 50

Finding the Rate (R)

Example 3: 45 is what percent of 75?

Think; n% of 75 = 45

↓ ↓ ↓

Rate Base Percentage

Using Fraction

n% of 75 = 45

$$\frac{n}{100} \times 75 = 45$$

$$\frac{75n}{100} = 45$$

$$75n = 45 \times 100$$

$$75n = 4500$$

$$\frac{75n}{75} = \frac{4500}{75}$$

n = 60

Using Proportion

n% of 75 = 45

$$\frac{n}{100} = \frac{45}{75} \rightarrow n:100 = 45:75$$

(100 x 45 = 4500; n x 75 = 75n)

75n = 4500

$$\frac{75n}{75} = \frac{4500}{75}$$

n = 60

Finding the Base (B)

Example 4:

In Mr. Lazo's Math class, 8 pupils got high scores on the test. If this is 20% of the total number of pupils in the class, how many pupils does he have in all?

Solution: R = 20%, P = 8, B = ?

Using Decimal

20% of n = 8

0.20 x n = 8

$$\frac{0.20n}{0.20} = \frac{8}{0.20}$$

n = 40

Using a Proportion

$$\frac{20}{100} = \frac{8}{n} \rightarrow 20:100 = 8:n$$

20 x n = 100 x 8

20n = 800

$$\frac{20n}{20} = \frac{800}{20}$$

n = 40

Example 5:

There are 200 participants attended during Mathematics Seminar workshop. If 40% of these were men and rest are women, how many are women participated in the Mathematics seminar workshop?

Understand:

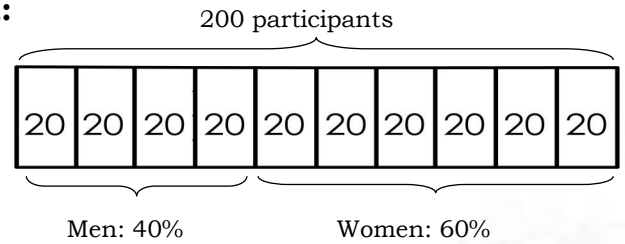
1)What is asked?

The number women participated in the seminar workshop.

2) What are given?

200 participants. Off the total, 30% were male.

Plan:



If there were 40% men participants, 100% - 40% = 60%. Therefore, 60% are women. You can use the formula for finding the percentage. **P = R x B**

Solve: Using the formula, we have

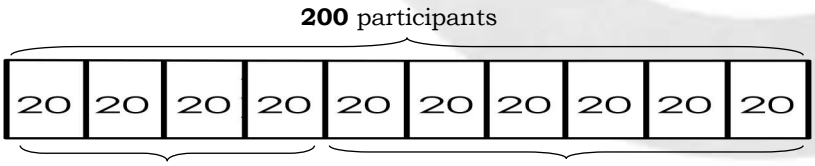
P = R x B
P = 60% x 200
P = 0.60 x 200
P = 120 ⟶ The number of women participants

Answer: There were 120 women participants in the seminar workshop.

Check: This is one way to know if your answer is correct.

40% x 200 = 0.40 x 200 = **80** - men participants
60% x 200 = 0.60 x 200 = **120** - women participants

120 + 80 = 200 - total number of participants



D

40% = 20+20+20+20 = **80** **60%** = 20+20+20+20+20+20 = **120**

Learning Task 1: Find the percentage. Write your answer in your notebook.

1) What is 20% of 160?
2) 25% of 96 is _____
3) 15% of 80 is _____
4) What is 50% of 70?
5) What is 30% of 20
6) 75% of 40 is _____
7) 65% of 100 is _____
8) 200% of 100 is _____
9) What is 125% of 100?
10) What is 300% of 100?

E

Learning Task 2: Find the base. Write your answer in your notebook.

1) 50 is 8% of what number?
2) 20% of what number is 15
3) 12 is 4% of what number
4) 80% of what number is 5?
5) 7 is 70% of what number?
6) 6 is 75% of what number?
7) 8 is 20% is what number?
8) 2.25 is 9% of what number?
9) 75% of what number is 1/2?
10) 49 is 87.5% of what number?

Learning Task 3: Find the rate. Write your answer in your notebook.

1) 1 is what percent of 10?
2) 10 is what percent of 20?
3) 5 is what percent of 25?
4) What percent of 80 is 56?
5) What percent of 20 is 15?
6) 14 is what percent of 35?
7) 27 is what percent of 48?
8) What percent of 12 is 10?
9) What percent of 24 is 0.12?
10) 3,150 is what percent 9000?

Learning Task 4: Answer the following, show your solution using decimal and proportion methods.

1. In survey, the Barangay had a certain number of families and 60% of them are identified and belong to the poor or marginalized sector if the total families is 150. How many families are belong to the poor sector?
2. Lola Remedios went to groceries to buy her daily needs, if the total amount of her groceries is Php 2,500.00. What would be the new amount if the store granted her 20% Senior Citizen's discounts?
3. A passenger bus can accommodate 60 seats. During pandemic they reduce their accommodation to 50%. How many passengers can be accommodate by the bus?

A

- **Percentage** is the amount that represents a part of a whole.
- To find the percentage of a number, you can change it to decimal or fraction and then multiply it by the given number or multiply the percent or rate (R) by the given number or base (B)
- **Base** is the number that represents the whole or entire amount.
- In finding the base (B), just divide the percentage by the rate.
- **Rate** is the number compared to 100, Usually it has either with a percent sign (%) or the word "percent" with it.
- To find the percent or rate, divide the percentage by the given number or base (B) or rewrite the number as fraction then change the denominator to 100. Simplify and write the percent symbol (%).

Solving Percent Problems

Lesson I

WEEK 4

In this lesson, you will apply what you have learned in finding the Percentage , Rate and Base.

At the end of this lesson, you will understand how to solve problems involving percent problems like problems involving discounts, original price, rate of discount, sale price, mark-up price, commission, sales tax and simple interest.

The following terms are used in dealing discount problems. Read and analyze these terms. These will help you as you go along in this lesson.

- **Discount (D)** is a decrease in the price of an item. It refers to the amount to be deducted from the original price.
- **Original Price (OP)** is the regular price charged of the item.
- **Discount Rate (DR)** is the percent taken off from the original price.
- **Sale Price (SP)** is the net price or discounted price. It is the price of the item after the discount has been deducted.

Discount and Sale Price both represent percentage, original price represents the base and discount rate represents the rate.

Example 1: Solving for Discount and Sales Price

A dress was sold for ₱500.00 at a 16% discount. How much is the discount or how much can be save? How much is the selling price?

Solution: DR=16%, **OP=** ₱500.00, **D** = **?, SP=?**

Using the discount formula, you have:

Discount (D) = Discount Rate (DR) x Original Price (OP) or **D= DR x OP**

D = ₱ 500.00 x 16%

= ₱ 500.00 x 0.16

= ₱ 80.00

Using the Sale Price formula, you have

Sale Price (SP) = Original Price (OP) - Discount (D) or **SP = OP - D**

SP = ₱ 500.00 - ₱80.00

= ₱ 420.00

Answer: The discount is ₱ 80.00 and the sale price is ₱ 420.00.

Example 2: Solving for Original Price.

A wristwatch was sold for Php 2500.00 with a 20% discount. What was the original price of the wristwatch?

Solution: DR=20%, **SP**=2,500, **OP** =**?**

Using the other formula for sale price, you have:

Sale Price (SP) = Original Price (OP) x (100% - DR) or **SP = OP x (100– DR)**

SP = OP x (100% - 20%)

2500 = OP x 80% substitute the given

2500 = OP x 0.80 change 80% to decimal

$$\frac{\textbf{OP} \times 0.\cancel{80}}{0.\cancel{80}} = \frac{2500}{0.80}$$ exchange and divide both sides by 0.80.

OP = Php **3,125.00**

Answer: The original price of the wristwatch is Php 3,125.00.

In some instances, the seller add a particular amount on the items or goods to be sell for the **profit**. From the **original price**, the amount added is the **markup price** and the new amount is called the **selling price**.

Markup and selling price represent both the percentage, cost represent the base, and the markup rate represent the rate. Here are the following terms that can help you to understand this particular topic.

Markup (M) is the increase in the price of an item.

Markup Rate (MR) is the percent to be added to the cost of item.

Cost (C) is the original amount of the item.

Example 3: Solving for Markup Price

To have the profit, the business woman adds a markup price of Php 4.00 on all the plastic products that bought in divisoria. What is the **markup rate** of the plastic bottle if the cost is ₱50.00? What will be the markup or selling price?

Solution: M = Php 4.50, **C** = Php 50.00, **MR** =**?** **SP = ?**

Using the other formula for Markup price, you have:

Markup Rate (MR) = Markup (M) ÷ Cost (C) x 100% or **MR = (M ÷ C) x 100%**

$$\textbf{MR} = \frac{M}{C} \times 100\%$$

$$= \frac{4.50}{50} \times 100 \qquad \text{Substitute the given.}$$

$$= 0.09 \times 100 \qquad \text{Divide. Then multiply by 100.}$$

$$\textbf{MR} = 9\ \%$$

Answer: The markup rate of the plastic bottle is 9%.

Using the other formula for Sale price, you have:

Sale Price (SP) = Cost (C) + Markup (M) or **SP = C + M**

SP = C + M

= Php 50.00 + Php 4.50

= Php 54.50

When someone sell your product, you need to him give some amount of money for his effort or certain percentage for the sales. The percent or amount that he/she will receive is called commission.

The commission and sale proceeds both represent percentage, total sales represents the base and the commission rate represents the rate. Study the following terms below. This will help you to understand this lesson.

Commission (C)is an amount of money a person receives for selling something.
Total Sales (TS) is the total amount of sales made by the salesperson.
Commission Rate (CR) is the percent taken off from the selling price.
Sale Proceeds (SP) is the amount that remains after the deduction of the commission.

Example 4: Solving for Commission

Mr. Lazo, a car agent receives an 8% commission on the car he sells. What is his commission if he sold a car at Php 1,550,000.00? How much will be the sale proceeds?

Solution:

TS = Php 1,550,000.00, **CR= 8%, C = ? SP = ?**

Using the commission formula, you have:

C = TS x CR

= **Php**1,550,000 x 8% Substitute the given

= **Php** 1,550,000 x 0.08 Change 5% to decimal.

C = **Php 124,000.00**

Answer: Mr. Lazo's commission is Php 124,000.00

Using the sale proceeds formula, you have;

SP = TS - C

= Php1,550,000.00 - Php 124,000.00

SP =Php1,426,000.00

Answer: The Sales proceeds is Php 1,426,000.00

Example 5:

Mr. Lazo was given a commission of Php120,000.00 of 6% commission rate for selling a house and lot. How much is the total sales of the house and lot that he sold?

Solution:

TS = ?, **C** = ₱120,000.00, **CR** = 6%

TS = C ÷ CR

= Php120,000 ÷ 6%

= Php 120,000 ÷ 0.06 Change 6% to decimal.

TS = **₱ 2,000,000.00**

Answer: The total sales of House and Lot is Php 2,000,000.00

SALES TAX

When you buy some products in the fast food, supermarkets and other store, you will noticed on your receipt that there is Value Added Tax (VAT) or **sales tax.**

In the restaurant, the family ordered a foods that has a total amount of ₱856.00 plus 12% sale tax. How much is the sales tax? How much is the total amount paid to the cashier?

Solution:

Sales tax = Total Amount of Products x Rate of Sales Tax

ST = TP x RST

= ₱ 856.00 x 12%

= ₱ 856.00 x 0.12

ST = ₱102.72

Computing the total amount to be paid

Total amount = ₱ 856.00 + sales tax

= ₱ 856.00 + 102.72

= **₱ 958.72**

SIMPLE INTEREST

Do you wonder why your mother or father save money in the bank? When your mother or father deposit their money in a savings bank, the bank will pay them a small amount for using their money. This amount is called interest.

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Interest (I) is an amount of money earned for using another's money over a period of time.

Principal (P) is the amount of money deposited, invested or borrowed.

Rate of Interest (R) is the percent added to the principal, amount borrowed or invested.

Time (T) is the length of time which money has been deposited or borrowed. It always computed in terms of year.

Amount Due (AD) is the total amount to be paid or received after a certain period of time that the principal has been borrowed or deposited.

Example 5: Solving for Simple Interest

Mr. Lazo opens a savings account in Commercial Bank where the money earns 1.8 interest per year. If he has Php 9,500.00 in his savings account, how much interest will his money earn in 1 year?

Solution:

I = ?, **P** = ₱9,500, **R** = 1.5%, **T** = 1 year

Using the interest formula, you have;

I = P x **R** x **T**
= Php 9,500 x 1.5% x 1
= Php 9,500 x 0.015 x 1
= Php 142.50

Example 6: Solving for Principal

Deo Lagario borrowed money from the lending company at 6% interest. If he paid an interest of Php 450.00 after 19 months, how much money did he borrow?

Solution:

P = ?, **I** = Php 510.00, **R** = 6 %, **T** = 19 months = 1.7

Using the interest formula, you have;

$$\mathbf{P} = \frac{I}{R \times T}$$

$$= \frac{₱450}{6\% \times 1.7}$$ Substitute the given.

$$= \frac{₱450}{0.06 \times 1.7}$$ Change 6% to decimal. Multiply 0.06 x 1.7 = 0.102

$$= \frac{₱510}{0.102}$$

P = ₱ 5,000.00

Answer: Jaybee borrowed ₱5,000.00.

D

Learning Task 1: Complete the following table. Write your answer in your notebook.

	Selling Price	Rate of Discount	Discount	Sale Price
1)	Php 950.00	20%		
2)	Php 550.00	35%		
3)	Php 1,550.00		₱697.50	

	Original Price	Mark-up Rate	Mark-up Price	Selling Price
4)	Php 950.00	20%		
5)	Php 550.00	35%		
6)	Php 1,550.00		Php 697.50	

	Total Sales	Rate of Commission	Commission
7)	Php 15,000.00	5%	
8)		14%	₱20,458.00

	Principal Amount	Rate	Time	Simple Interest
9)	Php 25,000.00	5.5 %	3 1/2 years	
10)	Php 4,200.00		4 years	Php 252.00

E

Learning Task 2: Read the following problems then solve. Write your answer in your notebook.

1) A red dress priced at Php 550.00 is marked 15% off. How much will be the discount.
2) Mr. Edwin Lazo paid Php 13,599.15 for a television set that originally costs ₱15,999.00. What is the rate of discount?
3) A wristwatch that regularly sells at Php 1580.00 is on sale at 30% off. What is the sale price?
4) The sales tax on a Php 25,400 sala set is Php 3,048. What is the rate of sales tax?
5) A doll was sold for Php 2,460 with a 18% discount. What was the original price of the doll?
6) How much money did Mr. Deo Lagario deposit to his bank account if at the end of a year, it earned an interest of Php 413.00 at 3.5 interest rate?
7) Mrs. Melanie Lazo pays Php 15.75 for each hair clip to its supplier. She decided to adds markup of Php 3.15. What is the markup rate?
8) Mrs. Irene Lazo, owner of clothing store pays Php 200.00 for P.E. set uniforms to its supplier. The store's percent of markup is 75%. Find its selling price.
9) Mr. Sonny Lazo is a real estate agent. He sold a lot for Php 1,580,000. If his agency pays him a 15% commission, how much will he receive?
10) Mrs. Conchita borrowed Php 20,000.00 at 3.5 interest for 1 year. What was the total amount he paid at the end of the 1-year term?

WEEK 5

Describing and Giving the Value of Numbers Expressed in Exponential Form

I Lesson

This lesson will show you on how you to understand the exponent and the base in a number expresses in exponential notation and the significance of this topic to any mathematical operations.

Exponent is a number that gives the power to which the base is raised

For example 4^2 the **4** is base where **2** is the exponent.

The exponent will determine on how many times you to multiply a certain number (base) to itself.

For example 4^2 therefore you can multiply the base or **4, 2 times 4 x 4 = 16**

Another example 2^5 = 2 x 2 x 2 x 2 x 2 =

4 x 4 x 2

16 x 2 = **32**

Note: Base with any value of positive integers but NOT equal to zero, that raise to zero is 1.

$n^0 = 1$ $n \neq 0$

D

Example 1:

Write and Evaluate the exponential notation of 4 x 4 x 4

Solution: 4^3 the base is 4 while the exponent is 3

Base **Exponent**

Use 4 as a base as a factor 3 times; therefore : 4 x 4 x 4 = 64

Example 2:

Evaluate the following exponential Notation

A. 6^3

B. 4^6

C. 3^7

Multiply each Base (B) by itself depending on the value of their exponents

A. multiply the Base 6 by itself 3 times therefore: 6 x 6 x 6 = **216**

B. multiply the Base 4 by itself 6 times therefore: 4 x 4 x 4 x 4 x 4 x 4 = **4,096**

C. multiply the Base 3 by itself 7 times therefore: 3 x 3 x 3 x 3 x 3 x 3 x 3 = **2,187**

Example 3:
Exponent is also useful with the Base of 10

1. 10^1
2. 10^2
3. 10^3
4. 10^4
5. 10^5
6. 10^6
7. 10^7
8. 10^8
9. 10^9
10. 10^{10}

You can notice that the value of exponent will determine the number of zero/s in the base 10

1. 10
2. 10 x 10 = 100

Learning Task 1. Evaluate 3 - 10

3. 10^3
4. 10^4
5. 10^5
6. 10^6
7. 10^7
8. 10^8
9. 10^9
10. 10^{10}

E

Learning Task 1: Evaluate the following and write your answer in the your notebook.

Exponential Notation	**Expanded form**	**Value**
1. $(-10)^2$		
2. 8^6		
3. 3^4		
4. $(-2)^5$		
5. 4^{10}		

A

Learning Task 2: Match the following expression write the corresponding letter before each number.

A	B
1.___ 10^3	A. 2 x 2 x 2 x 2 x 2 x 2 x 2 x 2
2.___ 2^8	B. 1,296
3.___ 6^4	C. 4,096
4.___ 100^0	D. 1,000
5.___ $(-8)^5$	E. 1
6.___ $(-4)^6$	F. –32 768

WEEK 6

Interpreting the GEMDAS Rule and Performing Two or More Different Operations

I

Lesson

In this lesson we are going to find out the order of operation to simplify expressions. The order of operation, means order in which steps must be done to simplify an expressions. This follows rules of each set of operation.

GEMDAS stands for **G** is for Grouping, grouping symbols are parenthesis ( ), Brackets [ ], and Braces { } **E** is for Exponents **M** is for Multiplication, **D** is for Division **A** and **S** are stands for Addition and Subtraction

Order of operations **PEMDAS**
Parenthesis ( )

Exponent 3^2] → Whichever comes first the operation from left to right
Multiplication] →
Division Whichever comes first the operation from left to right
Addition
Subtraction

Let's take a look at this example
8 + 2 x 10 in the first impression many people mistakenly calculate this without knowing **PEMDAS** rule which resulted in extremely wrong interpretation.
8 + 2 x 10
8 + 2 = 10
10 x 10 = 100 this answer is WRONG

Using **PEMDAS:**

8 + 2 x 10
Step 1 Observe PE**M**DAS in this expression neither Parenthesis nor exponent, what comes next is Multiplication.
Step 2 8 + 2 x 10 therefore 2 x 10 is 20
Step 3 PEMD**A**S Next is Addition or subtraction whichever come first from left to right. Therefore 8 + 2 x 10 is equal to
8 + 2 x 10

8 + 20 = **28** this answer is correct

D

Example 1

10 - 8 ÷ 4 + (7 - 2)
Step 1. Observe PEMDAS we have a parenthesis in this expression
10 - 8 ÷ 4 + (7 - 2) 7 - 2 = **5**
Step 2. 10 - 8 ÷ 4 + **5**
Step 3. 10 - 8 ÷ 4 + 5 there is no Exponent therefore what comes next is Multiplication or Division whichever comes first from left to right 8 ÷ 4 is **2Step 4.** 10 – 2 + 5 Next its either addition or subtraction whichever comes first from left to right.

Therefore: 10 - 2 + 5

∨

8 + 5 = **13**

Example 2

$3^2 + 2\ (8 - 2) - 3$

Step 1. Observe PEMDAS we have parenthesis in this expression $3^2 + 2\ (8 - 2) - 3$
$3^2 + 2(6) - 3$

Step 2. We have an exponent in this expression PEMDAS $3^2 + 2(6) - 3 = 9 + 2(6) - 3$

Step 3. We have an Multiplication in this expression PEMDAS $9 + 2(6) - 3$
$= 9 + 12 - 3$

Step 4. Operate Addition and subtraction whichever comes first from left to right
$9 + 12 - 3$

21 - 3 = **18**

E

Learning Task 1: Evaluate the following expressions using **GEMDAS** or **PEMDAS** rule.

1. $10 - 2 + 6 \div 3$
2. $(8 + 2) - (9 - 2^2)$
3. $3^2 - 15 \div 5 + (6 + 4)$
4. $5 + 2 - 3$
5. $20 - 5 \times 4 + 1$
6) $8 \times 2 - 4 \div 2 + 6$
7) $(-3)^2 - 6 + 3$
8) $9 \times 8 - 36 \div 4$
9) $3 + 2 + 8 \div 4\ (4 - 2)$
10) $16 - 6^2 + 36$

Learning Task 2: Modified **TRUE or FALSE,** write True if the statement is correct, supply the correct answer if the statement is False.

1. $10 - 4 + 9 \div 3$ = **9**_____
2. $(8 + 2) - (9 - 2^2)$ = **6**_____
3. $3^2 - 15 \div 5 + (6 + 4)$= **16**_____
4. $5 + 2 - 3$ = **4**_____
5. $5 - 5 \times 4 + 1$ = **1**_____

6) $2 \times 2 - 4 \div 2 + 4$ = **12**_____
7) $(-3)^2 - 12 + 2$ = **-1**_____
8) $3 \times 8 + 16 \div 4$ = **28**_____
9) $10 + 2 + 4 \div 4\ (4 - 3)$= **2**____
10) $11 - 3^2 + 3$ = **5**____

A

Learning Task 3: Choose the letter of correct answer . Write your answer in your notebook.

1. Order in which steps must be done to simplify an expressions. This follows rules of each set of operation.

A) PEMDAS B. GEMDAS C. Order of operation D. Math Operation

2) **3 + 4 - 8 x 2 + (4+2)** = _____
A) 4 B) 8 C) –3 D) –17

3) **$24 - 4^2 \times 3 + 15$**
A) 9 B) -9 C) 39 D) –39

4) **–3 + 8 + (3 + 2)**
A) 10 B) -10 C) 5 D)-5

5) **$(8 - 3)^2 - 25 \div 5 + (5 - 3)$**
A) 25 B) 22 C) 23 D) 24

WEEK 7

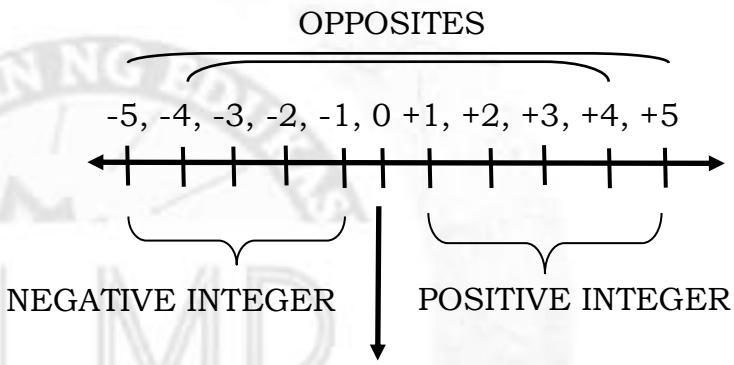
Describing the Set of Integers and Identifying Real-life Situations that Make Use of It

I Lesson

In this lesson we will find out the set of integers and identify real-life situation that make use of it. In the number system we have two categories namely real numbers and imaginary number, Integers is classified as real numbers

What is **integer**? Integer are all natural numbers known as counting numbers, the negatives, opposites, additive inverse, and the number zero is also included. Integer has NO fraction or decimals! 3/4, 0.265

Let's a take a look at the **number line**



On the number line, **opposite** are the same distance from 0 but on different sides of 0.

Additive inverse property of numbers that if you add opposites, your sum will be 0

Example: -4 + 4 = 0,-5 + 5 = 0

D

Have some practice. Name a positive or negative number to present each situations.

1. A plane climbing to an altitude of 10,000 feet
2. Taking 1000php out of the bank
3. 200 feet below see level
4. A hiker climbing to an altitude of 6,000 feet
5. Spending 5,000php

Answers :

1. Positive number can be presented climbing or rising. +10,000
2. Negative Numbers can be presented taking out or withdrawing –1000
3. Negative numbers can represent values below or less than a certain values –300
4. Positive numbers can represent climbing or rising +4,000
5. Negative numbers can represent losses or decreases

Learning Task 1: Name a positive or number integer to represent each situation. Write your answer in your notebook.

1. Saving Php25

2. 6 feet below the ground

3. what is the opposite of –6

4. When a player to a basketball team shot the ball and gained 3 point ahead against their opponent.

5. what is the sum of –8 + 8?

E

Learning Task 2: Name a positive or number integer to represent each situations. Write your answer in your notebook.

1. Gained 6% interest from bank deposit

2. What is the sum of –3 + 3

3. Deogracias Lagario paying a amortization amounting Php 22,300 to the bank from his car loan.

4. David Nathaniel Lagario climb to the hill with an altitude of 1,000 feet

5. The temperature is below zero degree Celsius

6. What is the sum of –4 + 6?

7. During Pandemic Mr. Lazo gained his weight from 66 kilogram to 80 kilogram.

8. a body builder loss his weight by 2 kilogram per week

9. 25 steps uphill

10. An airplane approaching to the runway descending its altitude by 10 feet per second.

A

Learning Task 3: Arrange the following integers **1 to 5** from least to greatest and **6 to 10** from greatest to least.

1) 5, 3, 7, 0 –2, -1, -7
2) -3, 0, 1, 12, -5, 2, 8
3) -7, 8, 6, -4, -1, 0, -6
4) 2, 0, -1, -4, 4, 5, -5
5) 4, 3, -1, 0, -4, -6, 10
6) 8, -3, 0, 1, 6, -4, -2
7) 1, -3, 0, 12, -5, 4, 11
8) 5, -7, -3, 0, 2, 8, -1
9) -4, 3, -1, 0, -2, 8, -13
10) 20, 1, 6, 0, -4, -23, -42

Learning Task 4: Identify the following expression . Write **Integers** or **NOT integers** in the given expression below.

1. –2 + 3 _____
2. 0.245 _____
3. 0 _____
4. 1.056 _____
5. -3, -2 –1 _____
6) 1/2 + 3/4 _____
7) –5/6 _____
8) –6 + 3 _____
9) –0.325 _____
10) 2.333 _____

Learning Task 5: Arrange and identify the following numbers or expression on its designated column.

1/2	-3	0	5	3.1416	2.01		
-1	-1/3	0.225	1/7	3/4			
-18	-10	9	1.5	2.3	3.18	5/7	
-1/3	-0.23	3.25	2	5	8	25	3/2
3.25	13/6	-0.2	4/3	13.15	6/7		

Integers	Fractions	Decimals

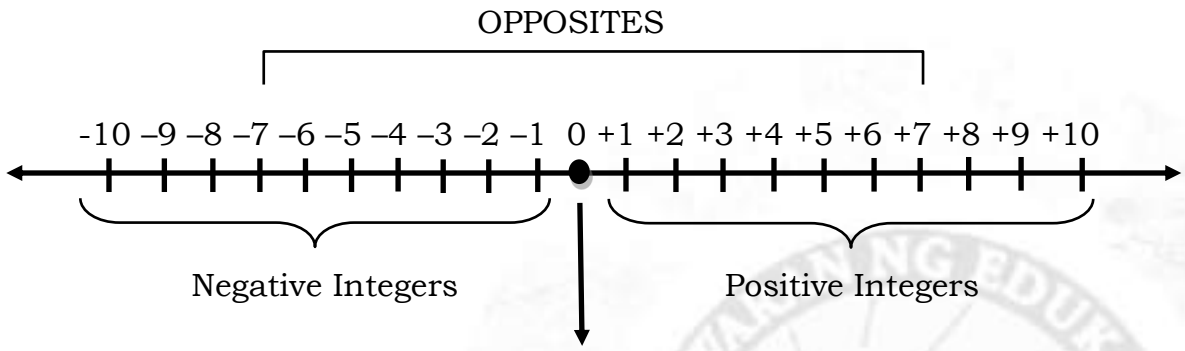
Comparing and Arranging Integers

I

Lesson

In the previous lesson we learned about integers and basic concept of number line. In this topic we are going to compare and arranges integers on the number line.

Look and observe the number line below where positive and negative integers are located. It will guide you to compare integers.



0 is neither negative nor positive

A number line is a straight line with numbers placed at equal intervals it can be extended infinitely in both directions.

As we move starts from 0 zero to the right the numbers or values are getting larger the further from zero going to the right the larger the number.

In the opposite direction as we move start from 0 zero the left the numbers or values are getting smaller. The further from zero going to the left the smaller the number or value.

Positive integers are greater than zero, where negative integers are less than zero.

D

Example 1: Compare the following pair of integers. Write your answer in your notebook.

1. +4 + 6 2. –6 –5 3. –12 –20 4.-6 –3 5. +13 +12

As we observe the number line we can state that the following:

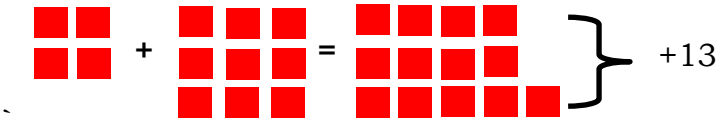
1. +4 is to the left of +6. therefore, +4 is less than +6 or +4 < +6
2. -6 is to left of –5. therefore, -6 is less that –5 or -6 < -5
3. -12 is to the right of –20. therefore, -12 is greater than –20 or -12 > -20
4. -6 is to the left of –3, therefore, -6 is less than –3 or -6 < -3
5. +13 is to the right of +12, therefore, +13 is greater than +12 or +13 > +12

Example 2: Basic operation of integers using algebra tiles

Adding Integers Using Algebra Tiles

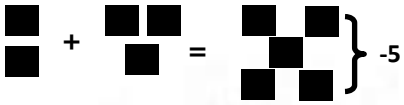
1. 4 + 9 = **13**

Red tiles represent as positive integers, therefore 4 + 9 = 13

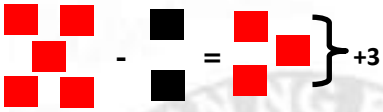


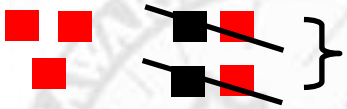
2. –2 + (-3) = **-5**

Black tiles represent as negatives integers, therefore –2 + (-3) = -5



3. 5 + (-2) = 3





CANCELLED OUT

Step 1 pair each tiles, or counters for every negative tiles/counters it has a corresponding pairing with positive tiles/counters

Step 2 each pair of red black is considered cancelled out.

Step 3 the remaining colours will be your answer

The two pairs of red black are cancelled out. Therefore the three (3) remaining red tiles is the answer. Since red tiles/counters are positive, the answer is positive 3

Example 3: Subtracting Integers using Algebra tiles or positive and negative counters.

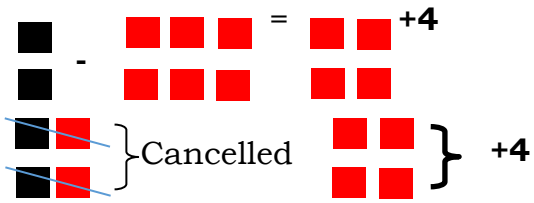
4 - (+5) or 4 - 5 = **-1**

2. –2 - (-6)

Step 1 negative multiply by negative is positive –2 - (-6)

Step 2 rewrite the expression. Therefore, **-2 + 6**

-2 + 6



E

Learning Task 1: Supply the inequality symbol > greater than or < less than to make the statement true. Write your answer in your notebook.

1. 12 ___ -13
2. 3 ___ 5
3. -15 ___ 20
4. -100 ___ 0
5. 21____-21
6. 13 _____-25
7. –1 _____0
8. –2 _____3
9. –10 _____ 20
10. 9 _____-13

Learning Task 2: Add the following integers using algebra tiles/counters. Illustrate your solution using Algebra tiles/counters. Indicate your positive and negative algebra tiles/counters red for positive counters and black for negative counters. Do this in your notebook.

1. –4 + (-2)
2. 6 + (-5)
3. -7 + (-2)
4. -8 + 4
5. -3 + 9

Learning Task 3: Subtract the following integers using algebra tiles/counters. Illustrate your solution using Algebra tiles/counters. Indicate your positive and negative algebra tiles/counters red for positive counters and black for negative counters. Do this in your notebook.

1. -8 - (+5)
2. 4 - 9
3. 10 - 7
4. 7 - (-3)
5. 12 - 15

A

Learning Task 4: Evaluate the following integers using algebra tiles/counters. Illustrate your solution using Algebra tiles/counters. Indicate your positive and negative algebra tiles/counters red for positive counters and black for negative counters. Do this in your notebook.

1) 12 - (-4)
2) -4 + 3
3) 5 - 7
4) -9 + 14
5) 6 - 11

WEEK 8

Performing Basic Operations on Integers

I

Lesson

In the previous lesson we learned about on how to arrange and compare the integers on the number line. We also know on how to interpret and describe the basic operation of integers using materials such as algebra tile, counters or chips etc.

In this lesson we are going to find out on how to perform the basic operation on integers. The most basic operation on integers are multiplication and division, it is easy to understand compare to addition and subtraction of integers

Multiplication of integers

Example : (-5) x (–5) = 25, 3 x 3 = 9

As you can see on the example above multiplying both signs either positive or negative the product is positive.

Example (-9) x 5 = -45 on the other hand multiplying opposite signs resulted in negative product.

(+) x (+) = +, (-) x (-) = + (-) x (+) = -

Division Integers are likewise as multiplication

Example 5/5 = 1, -10/2 = -5, -9/-3 = 3

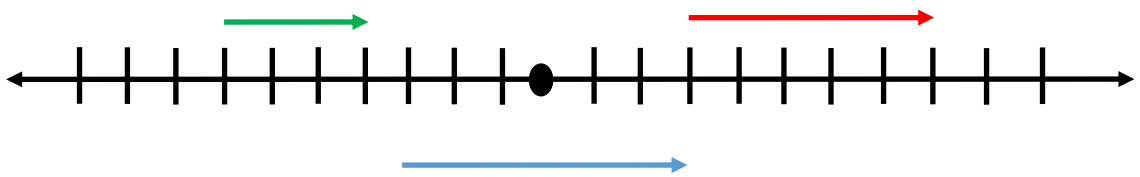
(+) ÷ (+) = +, (-) ÷ (-) = + (-) ÷ (+) = -

Try some learning task below before understanding the addition and subtraction of integers. This will help you to understand better the addition and subtraction of integers.

On the other hand Adding and subtracting integers are more difficult compare to multiplication and division, many students are confused on how to operate a proper order in terms of adding and subtracting of integers.

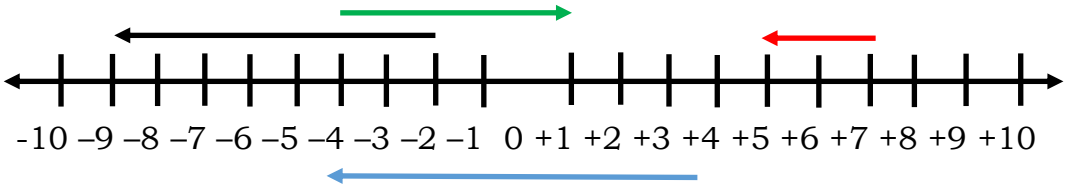
This lesson will help you to ease your confusion on how to add and subtract integers easily, we are going to find out how number line will help the learner in order to operate adding and subtracting integers appropriately.

Addition of integers



1. 3 + 5 = 8 the arrow starts with positive 3 since the operation is addition, the direction of arrow is counting 5 units to the right.
2. -5 + 8 = 3 the arrow starts with –5 counting 8 units to the right.
3. –7 + 3 = -4 the arrow starts with –7 counting 3 units to the right.

Subtraction of integers



1. 7 - 2 = 5 the arrow starts with positive 7 since the operation is subtraction, the direction of arrow is counting 2 units to the left.
2. 3 - 8 = -5 the arrow starts with positive 3 counting 8units to left
3. -2 –7 = -9 the arrow starts with negative 2 counting 7 units to the left.
4. –4 - (-5)
   simplify
   since the signs are both negative, as we mentioned earlier negative multiplied by negative, the product is positive

Therefore;

-4 + 5 = 1

D

Learning Task 1: Multiply the following. Write your answer in your notebook.

1. 4 x (-3)
2. 6 x 6
3. (-4) x (–5)
4. 8 x (-2)
5. (-7) x (-3)

Learning task 2: Divide the following integers. Write your answer in your notebook.

6. 8 ÷ 4
7. (–6) ÷ (-3)
8. –10 ÷ 2
9. 12 ÷ (-6)
10. 24 + (-8)

E

Learning Task 3: Addition of Integers

Answer the following expressions by show your solution through illustrating of number line. Write your answer in your notebook.

1. 6 + 4
2. -7 + (-2)
3. 3 + (-7)
4. -8 + 2
5. -1 + (-9)

Learning Task 4: Subtraction of integers

Answer the following expressions by show your solution through illustrating of number line. Write your answer in your notebook.

1. 8 - (-4)
2. -9 -(+6)
3. 11 - 6
4. -3 - (-4)
5. -7 + 9

A

Learning Task 4: Evaluate the following expressions without using of number line. Write your answer in your notebook.

1. 15 - (-11)
2. 2 + (-4)
3. -8 + 8
4. -4 + 9
5. 12 + (-22)
6. -19 + 2
7. 8 + 12
8. 13 + (-7)
9. -6-8
10. -7+13

Solving Basic Operations on Integers

I Lesson

In the previous lesson you learned about the basic operation of integers from multiplication, division, of integers, addition and subtraction as well with an aid of number line

In this lesson, you are going to find out how to solves routine and non routine problems involving basic operation of integers using appropriate strategies and tools.

Routine problems is a type of problem with an immediate solution, while non-routine problems, is more complex with compare to routine problem, non-routine problems requires higher thinking skills, creativity, and Critical thinking skills, it can also be solved in multiple ways.

D

Read the following word problems involving integers. Observe how it was.

Example 1

A. When Miguel and Isaac woke up, their temperatures was 39° C . Two hours later it was 2 degree lower. What was his temperature then?

Solution:
39 - 2 = 37 or 37° C
The word degree lower is an indicates subtraction.

B. An elevator is on the 29th floor. It goes down 14 floors and up 8 floors. What floor is the elevator on now?

Solution:
29 - 14 = 15
Step 1 from 29th floor down to 14 floors therefore; the operation is subtraction the word goes DOWN indicates subtraction.

15 + 8 = 23
Step 2 from 15th floor up to 8 floors, therefore 15 add by 8 floors , the word UP indicates addition.

Example 2

SM department store mark ₱250 off of the price of each pair of shoes in stock. If the store has 500 pairs of shoes in stock, what is the total reduction in price?

Step 1 Put -250 reduction per one pair of shoes
Step 2 –250 multiply by the total number of pair of shoes
Step 3 –250 x 500 = -125,000 negative sign indicates reduction, keep in mind that there is no (-) negative amount therefore the total reduction is amounting to Php 125,000

Example 3

A construction firm distributed Php15,500.00 equally for 20 laborers for their daily compensation. how much money will each get each worker?

15,500 ÷ 20 = **775**

Since the key word is distributed equally it indicates division. Therefore each worker would received amounting Php 775.00 for one day of

E

Learning Task 1: Answer the following routine and non-routine problem. Write your answer in your notebook.

1) If 5850 kg of rice is packed in 65 sacks, how much rice will each sack contain?

2) If it is 25° C outside and the temperature will drop 5° C in the next 8 hours how cold will get it?

3) David has Php1,327.00on his checking account. If he writes a check for Php 1,987.00, what will David's balance be?

4) Isaac is ₱ 250.00 debt. Reign gives David ₱ 500.00. how much money does David's have?

5) You are at 1,532 feet elevation and descends 836 feet. What is the new elevation?

A

Learning Task 2: Solve each problem. Write your answer in your notebook.

1) A submarine starts out at 200 feet below sea level. It dives 535 feet before rising 425 feet. Represent the current depth of the submarine as an integer.

2) A plane is flying 5000 feet. The plane climbs 20,000 feet to approach cruising altitude. After a few minutes at this new altitude, the plane hits turbulence and descends 12,253 feet. Express each increase or decrease in altitude as an integer operation, and determine the new altitude of the plane.

PIVOT Assessment Card for Learners

Personal Assessment on Learner's Level of Performance

Using the symbols below, choose one which best describes your experience in working on each given task. Draw it in the column for Level of Performance (LP). Be guided by the descriptions below.

☆ - I was able to do/perform the task without any difficulty. The task helped me in understanding the target content/lesson.

✓ - I was able to do/perform the task. It was quite challenging but it still helped me in understanding the target content/lesson.

? - I was not able to do/perform the task. It was extremely difficult. I need additional enrichment activities to be able to do/perform this task.

Distribution of Learning Tasks Per Week for Quarter 2

Week 1	LP	Week 2	LP	Week 3	LP	Week 4	LP
Learning Task 1		Learning Task 1		Learning Task 1		Learning Task 1	
Learning Task 2		Learning Task 2		Learning Task 2		Learning Task 2	
Learning Task 3		Learning Task 3		Learning Task 3		Learning Task 3	
Learning Task 4		Learning Task 4		Learning Task 4		Learning Task 4	
Learning Task 5		Learning Task 5		Learning Task 5		Learning Task 5	
Learning Task 6		Learning Task 6		Learning Task 6		Learning Task 6	
Learning Task 7		Learning Task 7		Learning Task 7		Learning Task 7	
Learning Task 8		Learning Task 8		Learning Task 8		Learning Task 8	

Week 5	LP	Week 6	LP	Week 7	LP	Week 8	LP
Learning Task 1		Learning Task 1		Learning Task 1		Learning Task 1	
Learning Task 2		Learning Task 2		Learning Task 2		Learning Task 2	
Learning Task 3		Learning Task 3		Learning Task 3		Learning Task 3	
Learning Task 4		Learning Task 4		Learning Task 4		Learning Task 4	
Learning Task 5		Learning Task 5		Learning Task 5		Learning Task 5	
Learning Task 6		Learning Task 6		Learning Task 6		Learning Task 6	
Learning Task 7		Learning Task 7		Learning Task 7		Learning Task 7	
Learning Task 8		Learning Task 8		Learning Task 8		Learning Task 8	

Note: If the lesson is designed for two or more weeks as shown in the eartag, just copy your personal evaluation indicated in the first Level of Performance found in the second column up to the succeeding columns, ie. if the lesson is designed for weeks 4-6, just copy your personal evaluation indicated in the LP column for week 4, week 5 and week 6. Thank you.

Key to Correction

Week 1

Learning Task 4	
1. 3:4, 3 is to 4	6. 8:13, 8 is to 13
2. 5:8, 5 is to 8	7. 3:5, 3 is to 5
3. 4:7, 4 is to 7	8. 9:11, 9 is to 11
4. 2:9, 2 is to 9	9. 10:11, 10 is to 11
5. 6:7, 6 is to 7	10. 56:18, 58 is to 18

Learning Task 3		
1. 1/2, 4/8, 6/12	6. 4/5, 16/20, 24/30	
2. 1/2, 10/20, 15/30	7. 6/10, 9/15, 12/20	
3. 8/10, 12/15, 16/20	8. 1/4, 6/24, 8/32	
4. 1/3, 2/6, 4/12	9. 6/14, 9/21, 12/28	
5. 4/10, 6/15, 8/20	10. 3/4, 9/12, 12/16	

Learning Task 1
1. 5/4 , 5:4 , 5 is to 4
2. 4/3 , 4:3 , 4 is to 3
3. 6/5 , 6:5 , 6 is to 5

Learning Task 2	
1. 7/2, 7:2, 7 is to 2	6. 3/2, 3:2, 3 is to 2
2. 10/1, 10:1, 10 is to 1	7. 1/3, 1:3, 1 is to 3
3. 8/3, 8:3, 8 is to 3	8. 2/3, 2:3, 2 is to 3
4. 2/1, 2:1, 2 is to 1	9. 5/1, 5:1, 5 is to 1
5. 1/12, 1:12 , 1 is to 12	10. 52/1, 52:1, 52 is to 1

Week 2

Learning Task 3	
1. Direct, 350 km	2. Indirect, 12.5 hours
3. Direct, 52 km/h	4. Partitive, 44 hectares
5. Partitive, Php 120, 000.00	

Learning Task 2		
1. 84	2. 78	3. 24
4. 16	5. 35	

Learning Task 1			
1) YES	3) NO	5) NO	
2) YES	4) YES		

Week 3

Learning Task 1				
1) 32	2) 24	3) 12	4) 35	5) 6
6) 30	7) 65	8) 200	9) 125	10)300

Learning Task 2				
1) 625	2) 75	3) 300	4) 6.25	5) 10
6) 8	7) 40	8) 25	9) 2/3	10) 56

Learning Task 4: 1) 190 2) 30 sits 3) Php 2000.00

Learning Task 3					
1) 10%	2) 50%	3) 20%	4) 70%	5) 75%	
6)40 %	7)56.25%	8)83.33%	9)1/2%	10) 35%	

Week 4

Learning Task 1				
1) Php 190, Php 760			6) 45% , Php 2247.5	
2) Php 192.5 , Php 357.5			7) Php 750	
3) 45% , Php 852.5			8)Php 146 128.57	
4) Php 190, Php 1140			9) Php 4812.5	
5) Php 192.5, Php 742.5			10) 6%	

Learning Task 2			
1. Php 82.5	2. 15%		
3. Php 1106	4. 12%		
5. Php 3000	6. Php 11800		
7. 20%	8. Php 350		
9. Php 237 000	10. Php 20700		

Week 5

Learning Task 1	
1. (-10)(-10), 100	
(8)(8)(8)(8)(8)(8)(8), 262144	
3. (3)(3)(3)(3) , 81	
4. (-2)(-2)(-2)(-2)(-2) , -32	
5. (4)(4)(4)(4)(4)(4)(4)(4)(4)(4), 1048576	
Learning	1) D 2) A 3) B 4) E 5) F 6) C

Week 6

Learning Task 3			
1) A/B	2) C	3) B	
4) A	5) B		

Learning Task 2				
1) True	2) False (5)	3) True	4) True	5) False (14)
6) False (6)	7) True	8) True	9) False (13)	10) True

Learning Task 1				
1) 6	2) 5	3)16	4) 4	5)1
6) 20	7) 6	8)63	9) 6	10)16

Week 7

Learning Task 5				
INTEGERS				
-3, 0, 5, -1, -18, -10, 9, 2, 5, 8, 25				
FRACTIONS				
1/2 , - 1/3, 1/7, 3/4, 5/7, - 1/3, 3/2, 13/6, 4/3, 6/7				
DECIMALS				
2.3, 3.18, -0.23, 3.25, -0.2, 13.15				
3.1416, 2.01, 0.225, 1.5,				

Learning Task 4				
1) I	2) NT	3) I	4) NT	5) I
6) NT	7) NT	8) I	9) NT	10)NT

Learning Task 3
1. -7, -2, -1, 0, 3, 5, 7
2. -5, -3, 0, 1, 2, 8, 12
3. -7, -6, -4, -1, 0, 6, 8
4. -5, -4, -1, 0, 2, 4, 5
5. -6, -4, -1, 0, 3, 4, 10
6. 8, 6, 1, 0, -2, -3, -4
7. 12, 11, 4, 1, 0, -3, -5
8. 8, 5, 2, 0, -1, -3, -7
9. 8, 3, 0, -1, -2, -4, -13
10. 20, 6, 1, 0, -4, -23, -42

Learning Task 1		
1. +25	3. +6	5) 0
2. -6	4. +3	

Learning Task 2		
1. +6	2. 0	3. -22300
4. +1000	5. negative degree	
6. +2	7. 80	8. -2
9. +25	10. -10	

Week 7 Lesson 2					
Learning Task 1	1. >	2. <	3. <	4. <	5. >
	6. >	7. <	8. <	9. <	10. >

Week 7 Lesson 2					
Learning Task 2	1) -6,	2) 1	3) -9	4) -4	5) 6
Learning Task 3	1) -13	2) -5	3) 3	4) 10	5) -3
Learning Task 4	1) 16	2) -1	3) -2	4) 5	5) -5

Week 8

Learning Task 1
1) -12
2) 36
3) 20
4) -16
5) 21

Learning Task 2
1) 2
2) 2
3) -5
4) - 2
5) - 3

Learning Task 3
1) 10
2) -9
3) -4
4) - 6
5) -10

Learning Task 4
1) 12
2) -15
3) 5
4) 1
5) 2

Learning Task 5	
1) 26	6) -17
2) -2	7) 20
3) 0	8) 6
4) 5	9 –14
5) -10	10) 6

Learning Task 1
1. 90kg
2. 20 C°
3. -660
4. ₱ 250.00
5. 696ft.

Learning Task 2
A. –310
B. 7,747ft.

References

21st Century Mathematics 6

Learner's Material for Grade VI

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