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Mathematics

Quarter 2 – Module 8:
"Solving Problems Involving Linear Functions"

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Quarter 2 – Module 8: Solving Problems Involving Linear Functions

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Mathematics

Quarter 2 – Module 8:
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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-tests 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 Teacher are also provided to our 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. And 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

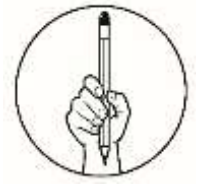
In this module, you will be acquainted with solving problems involving linear functions. The scope of this module enables you to use it in many different learning situations. The lesson is arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

This module contains:

Lesson 1: Solving Problems Involving Linear Functions

After going through this module, you are expected to:

1. identify steps in modeling and solving word problems involving linear functions;
2. create linear functions that represent relation between quantities; and
3. apply the concepts of linear function in solving real-life problems.



What I Know

Directions: Read the questions carefully and choose the letter of the correct answer.

1. Which of the following functions should be used to solve problems involving a constant rate of change?
   A. exponential function
   B. linear function
   C. polynomial function
   D. quadratic function

2. Which of the following is the standard form of a linear function?
   A. $f(x) = bx + m$
   B. $f(x) = bx - m$
   C. $f(x) = mx + b$
   D. $f(x) = mx - b$

3. Mr. Nilo, a mathematics teacher, charges $P200$ per hour for tutorial service to a junior high school student. If he spends 3 hours tutoring per day, how much would he receive in 12 days?
   A. $P6{,}300$
   B. $P7{,}200$
   C. $P7{,}300$
   D. $P8{,}100$

4. Beverly's car uses 15 liters of gasoline to travel 120 kilometers. At that rate, how many liters of gasoline will her car consume to travel 130 kilometers?
   A. 15.25 liters
   C. 17.25 liters

B. 16.25 liters
D. 18.25 liters

5. Joshua likes to read a magazine. He reads 50 pages in 2 hours. At the same rate, how many hours will it take him to read the remaining 150 pages?
   A. 6
   C. 8
   B. 7
   D. 9

6. Lyoid works as a service crew in a fast-food center where he earns $P82.00$ per hour. How much will he earned in a day if he works 8 hours straight?
   A. $P556$
   C. $P756$
   B. $P656$
   D. $P856$

7. Refer to item 6, how much will Lyoid earn in 3 days?
   A. $P1{,}668$
   C. $P2{,}268$
   B. $P1{,}968$
   D. $P2{,}568$

8. Queenie is working in a restaurant and her hourly wage is $P51.68$. Let x represents the number of hours worked and let $f(x)$ represents the total amount earned. Which of the following functions best represents the total amount earned by day?
   A. $f(x) = 51.68x$
   C. $f(x) = x - 51.68$
   B. $f(x) = x + 51.68$
   D. $f(x) = 51.68 - x$

9. Refer to item number 8, if Queenie works 8 hours a day, how much will she earn in 14 days?
   A. $P4{,}778.16$
   C. $P5{,}788.16$
   B. $P4{,}878.16$
   D. $P5{,}878.16$

10. JC works as a salesman in a company that distributes top brands and latest model of cellular phones. He receives a commission of $P1{,}500$ for every cellular phone unit he sells. On top of the commission, he receives a monthly salary of $P12{,}000$. What is his commission if he sells 25 cellphones in a month?
    A. $P27{,}000$
    C. $P46{,}500$
    B. $P37{,}500$
    D. $P47{,}500$

11. In item number 10, how many cellphones should he sell in a month to make an income of $P79{,}500$?
    A. 45
    C. 65
    B. 58
    D. 67

12. Al John spent $P1{,}200$ on N95 facemasks because of pandemic. Each facemask costs Php100. How many facemasks did he buy?
    A. 10
    C. 15
    B. 12
    D. 95

13. Jun Mark used 15 m of copper wire which weighs 1 kg. If a copper wire weighs 3.5 kg, how many meters is it?
    A. 50 m
    C. 53.5 m
    B. 52.5 m
    D. 54 m

14. Ranie worked in the store for 5 hours. He earned a total of $Php1{,}500$. How much does he earn each hour?

A. $P300$ C. $P500$

B. $P400$ D. $P600$

15. Puto balanghoy or steamed cassava cake is traditionally made in the Visayas region using basic ingredients such as cassava, brown sugar and grated coconut. Marvin is selling a puto balanghoy in the function of $f(x) = 10x$, how much is Marvin's income if a customer wants to buy a total of 50 pieces?

A. $P450$ C. $P550$

B. $P500$ D. $P600$

Lesson 1 Solving Problems Involving Linear Functions

Linear function is useful in solving real-life problems. For instance, finding the monthly of an employee given the number of hours work and the corresponding rate per hour, the distance a ship or plane travels given the time and speed of travel, the amount paid for a cellular phone call given the number of minutes and the rate per minute, and many more. Each of these can be solved using the concepts learned about linear functions.

Let us start this lesson by reviewing independent and dependent variables. This will guide you in formulating your function rule.

What's In

Directions: Given each situation below, identify which variable depends on the other, then complete the next sentence by filling in the blanks with either independent or dependent. Number 1 is done as your guide.

1. The plant grows 0.5 cm every week.

   The height of the plant is the <u>dependent</u> variable while the number of week is the <u>independent</u> variable.

2. Mang Kanor earns Php600 for each day he does carpentry works. The number of days doing carpentry works is the _____ variable while the amount Mang Kanor earns is the _____ variable.

3. Alma burns 192 calories for every hour she walks in the park. The number of hours Alma walks is the _____ variable while the number of calories burn is the _____ variable.

4. In a laundry shop, each kilogram of laundry costs Php35. The cost of the laundry is the _____ variable while the number of kilograms is the _____ variable.

5. In a basketball game, Ramon earns 2 points for each basket he makes. The number of points earned is the _____ variable while the number of baskets made is the _____ variable.

Remember, dependent variable depends on independent variable, while independent variable determines the value of the dependent variable.

What's New

During the Corona Virus Disease 2019 (COVID – 19) pandemic, Mrs. Reyes was not able to report to work because their city was placed under Enhanced Community Quarantine (ECQ) and everyone is required to "Stay at Home". She was worried because she has no more income to support her two children.

When she received the Php6,000.00 cash assistance from the Social Amelioration Program, she thought of a way on how this amount will last longer by baking and selling banana cake. Her banana cake cost Php85 per canister.

Complete the table below to show the amount Mrs. Reyes will earn from selling banana cake, then answer the questions that follow.

Number of canisters of banana cake (x)	1	2	3	10	
Sales $f(x)$ (in pesos P)	85	170	255		1,955

Questions:

1. Do you have any difficulty in completing the table? Kindly elaborate.
2. What are the independent and dependent variables in the situation?

3. Can you model the situation using linear function? If so, what is it?
4. If Mrs. Reyes sells 10 canisters in a day, how much will she earn for that day?
5. How many canisters of banana cakes must she sell to earn *P*1,955?
6. What other ways could you suggest to Mrs. Reyes for her to be able to support her children if the pandemic continues longer?

What is It

There are many real-life problems that can be solved through linear function. In solving problems, we can use Polya's method introduced by George Polya. George Polya is a Hungarian-American mathematics educator who believed that problem solving was an art and the skills to solve math problems can be mastered with constant practice. Polya's Method includes the following steps:

Steps in Solving Word Problems:

1. **Understand the problem**. Read and analyze the situation.
2. **Devise a plan**. List down all the given data. Determine the unknown and what is asked in the problem.
3. **Carry out the plan**. Write the function that describes the relationship between the variables and solve the function.
4. **Look back**. Verify if the solution obtained is meaningful to the problem solved.

The problem about Mrs. Reyes on baking and selling of banana cake in the previous section can be solved using Polya's Method. The amount of money she earns is a function of the number of canisters of banana cake sold.

Step 1. Understand the problem.

In solving such problem, you need to analyze and understand the problem and determine what is asked.

For instance, you are asked to find how many canisters of banana cake to be sold to have a sale of *P*1,955.00.

Also, determine what are the given information. In this problem, the price per canister of banana cake is *P*85.

Since the amount of sales is a function of the number of canisters of banana cake sold, this means that the amount of sales depends on the number of canisters of banana cake being sold.

Step 2. Devise a plan.

Using the information above, a linear function can be used to model the relationship between the sales, expressed as f(x), and number of canisters of banana cake sold, expressed as (x).
If we use a table below, we see that

Number of canisters of banana cake (x)	1	2	3
Sales f(x) (in Php)	$1\,x\,85 = 85$	$2\,x\,85 = 170$	$3\,x\,85 = 255$

With that, you can model the amount of sales as

$$f(x) = 85x$$

Step 3. Carry out the plan.

This time, you can use the model to substitute any number of canisters of banana cake sold and find the amount of sales.

So, if Mrs. Reyes sold 10 canisters of banana cake, then,

$$\begin{aligned} f(x) &= 85x \\ f(10) &= 85(10) \\ f(10) &= 850 \end{aligned}$$

Hence, the amount of sales is $P850$ for the 10 canisters of banana cake sold.

To answer the question, how many canisters of banana cake to be sold to earn $P1{,}955$, we will substitute $f(x)$ by $P1{,}955$ in the modelled function to find the number of canisters (x) of banana cake sold.

$f(x)$	$=$	$85x$	*Given*
1955	$=$	$85x$	*Substitution*
$\frac{1}{85}(1955)$	$=$	$(85x)\frac{1}{85}$	*Multiplicative Inverse Property*
23	$=$	x	*Multiplicative Identity Property*

Step 4. Look back.

Looking back is the same as checking your answer, reviewing what you have done and verifying if the computed answer is acceptable and valid.

Checking if the amount of sale is *P*850 for selling 10 canisters of banana cake.

$$850 = 85x$$
$$850 = 85(10)$$
$$850 = 850 \qquad \text{TRUE}$$

This means that the answer is correct.

To answer the question, how many canisters of banana cake to be sold to earnPhp1,955, we will substitute $f(x)$ by Php1,955 in the modelled function to find the number of canisters (x) of banana cake sold.

$$f(x) = 85x$$
$$1955 = 85(23)$$
$$1955 = 1955 \qquad \text{TRUE}$$

Hence, 23 canisters of banana cake is correct.

The following illustrative examples will help you learn more on how to solve problems involving linear functions

Illustrative Examples

1. Mark works as a service crew in a fast-food center where he earns *P*45.00 per hour. How much will he earn in a day if he works for 6 hours?

Solution.

Step 1. Understand the problem.

Given: Mark earns *P*45.00 per hour as a service crew
Asked: The amount Mark will earn in a day after working 6 hours

Independent variable: no. of hours rendered
Dependent variable: amount earned in a day

Step 2. Devise a plan.

Using the information above, a linear function can be modelled to show the amount earned, expressed as $f(x)$, for a number of hours rendered, expressed as (x).

The rate of change (***m***) in the problem is $P45$ and the y-intercept ***b*** is 0 which means the function will be $f(x) = 45x + 0$ or $f(x) = 45x$

Step 3. Carry out the plan.

To solve for the amount of earning, f(x), given that he will work for 6 hours, x=6, we have:

$f(x)$	=	$45x$	(given)
$f(6)$	=	$45(6)$	(by substitution)
$f(6)$	=	270	(by multiplication)

Step 4. Look back.

To verify your answer, just substitute the value of x *and* $f(x)$ in the function.

$f(x)$	=	$45x$	Given
270	=	$45(6)$	By substitution
270	=	**270**	**TRUE**

Therefore, Mark will be earning $P270.00$ after working for 6 hours.

2. Mr. Feli, a science teacher, earns $P150$ per hour for online tutorial service to a senior high school student. If he spends 2 hours tutoring each day, how much would he receive in 15 days?

Solution:

Step 1. Understand the problem.

Given:

- Mr. Feli earns $P150$ per hour for an online tutorial service
- Mr. Feli rendered 2 hours of tutoring service per day

Asked:

- The amount Mr. Feli will receive after 15 days of giving tutorial service.

Step 2. Devise a plan.

Let x be number days of tutorial service
Let $2x$ be the total number of hours of tutorial sessions
And, let $f(x)$ be the total amount he earns

Using the information, the total amount Mr. Feli receives can be modelled as:

$$f(2x) = 150(2x)$$

Step 3. Carry out the plan.

Using the model, we have:

$f(2x)$	$=$	$150(2x)$	*Given*
$f(2(15))$	$=$	$150[2(15)]$	*Substitution*
$f(2(15))$	$=$	$150[30]$	*Simplify*
$\boldsymbol{f(30)}$	$=$	$\mathbf{4,500}$	***Simplified***

Step 4. Look back.

To verify your answer, just substitute the value of x *and* $f(2x)$ in the function.

$f(2x)$	$=$	$150(2x)$	*Given*
$4{,}500$	$=$	$150[2(15)]$	*Substitution*
$4{,}500$	$=$	$150[30]$	*Simplify*
$\mathbf{4,500}$	$=$	$\mathbf{4,500}$	***Simplified***

Therefore, Mr. Feli will receive *P*4,500 for 15 days of tutorial service.

What's More

Activity 1: Watch Your Steps

Directions: Complete the steps in solving word problems involving linear functions by supplying the required information. Write your answer on a separate sheet of paper.

Tony begins to save for a new pair of shoes that costs $P2{,}375.00$. He already has $P500.00$ and plans to save $P75.00$ per week. How long does he have to save to buy the shoes?

Solution:

Step 1. Understand the Problem.

Given:

Asked:

Independent variable: _____

Dependent variable: _____

Step 2. Devise a Plan.

Let x represents the _____

Let f(x) represents the _____

Make a table of values.

x					
$f(x)$					

Total amount saved = (savings per week x number of weeks)
+ _____

$f(x) =$ _____

Step 3. Carry out the Plan.

$f(x)$	=	____ + 500	
2375	=	_____ + 500	By substitution
$2375 + (-500)$	=	_____ + 500 + (-500)	By Addition Property of Equality
_____	=	_____	By simplification
$\frac{1875}{_____}$	=	$\frac{_____}{_____}x$	Division Property of Equality
_____	=	x	By simplification

Step 4. Look back.

$f(x)$	=	_____ + 500
2375	=	75(____) + 500
2375	=	_____ + 500
2375	=	_____ _____

Hence, Tony needs to save for ____weeks.

Activity 2: Apply Me!

Directions: Solve the problems by applying the Polya's 4-step method.

1. John is saving for a new comic book subscription, and he already has *P*300. Every week, he saves *P*5 from his allowance. How much will he be able to save in *3 weeks*? *9 weeks*? *21 weeks?*
2. Vince's parents bought a portion of residential lot for *P*150,000. Every year the original price of the lot in their community increases for 40%. How much is the value of the lot if they want it to sell after 10 years?

What I Have Learned

Directions: Complete the paragraph below by filling in the blanks with correct word/s which you can choose from the box. Each word may be used repeatedly. Write your answer on a separate sheet.

variable	plan	check	linear	understand
graph	distance	Procedure	incorrect assumptions	
table	look-back	problem solving	carry-out the plan	

There are many real-life situations that exhibit _____. It has one independent variable and one dependent _____. One of the primary reasons people have trouble with _____ is that there is no single _____ that works all the time. Each problem is slightly different. Also, it requires practical knowledge about the specific situation. If you misunderstand either the problem or the underlying situation you may make mistakes or have _____. In solving word problems, the

first step is to _____ the problem. You have to read and analyze the situation. Next step is to devise a _____. You have to list all the given data and determine what is asked in the problem. Third step is to _____. Once you have an idea for a new approach, jot it down immediately. When you have time, try it out and see if it leads to a solution. If the plan does not seem to be working, then start over and try another approach. Often the first approach does not work. Do not worry, just because an approach does not work, it does not mean you did it wrong. You accomplished something, knowing a way does not work is part of the process of elimination. Lastly, you have to _____. Once you have a potential solution _____ to see if it works.

What I Can Do

Directions: Consider the situation below and answer the questions that follow.

Nikka likes the new face of 5-peso coin, so she kept every new 5-peso coin that she'll have to her piggy bank. Because of the pandemic, she was forced to open her piggy bank to buy some face masks and alcohol. She was aware that she mistakenly place 5 pieces of 10-peso coin in it. The total amount of money inside her piggy bank was *P*1,060.

Questions

a. What is the dependent variable? Explain your answer.
b. What is the independent variable? Explain your answer.
c. What is the total amount of 10-peso coins Nikka mistakenly place in the piggy bank?
d. Write the linear function notation that represents the total amount of money in the piggy bank.
e. How many 5-peso coins Nikka saved in her piggy bank?

Assessment

Read the questions carefully and choose the letter of the correct answer. Write your answer on a separate sheet of paper.

1. Which of the following function follows the form $f(x) = mx + b$?
   A. exponential function
   B. linear function
   C. polynomial function
   D. quadratic Function

2. Lino worked for 8 hours in a computer shop. He earned a total of $Php400$. How much does he earn each hour?
   A. $P50$
   B. $P60$
   C. $P70$
   D. $P80$

3. An employee receives a weekly salary of $P10{,}000$ and a 6% commission on all sales. Which of the following is the correct representation for this situation?
   A. $W(s) = 0.06s + 10{,}000$
   B. $W(s) = 0.06s - 10{,}000$
   C. $W(s) = 10{,}000s + 0.06$
   D. $W(s) = 10{,}000s - 0.06$

4. Mike earns $P300$ per hour at the bookstore. The total amount of his paycheck is represented by *P(h)* and h is the number of hours he works. If he worked for 7 hours, what is his total paycheck that day?
   A. $P2{,}000$
   B. $P2{,}100$
   C. $P2{,}400$
   D. $P3{,}000$

5. A candlestick burns at a rate of 0.2 inches (in) per hour. After 8 hours the candlestick is 13.4 inches tall. What is the original height of the candle?
   A. 13 in
   B. 15 in
   C. 17 in
   D. 19 in

6. During the COVID-19 pandemic, Mrs. Ramirez baked cakes to be sold online. Camilia was hired as delivery girl and offered a salary of $P35$ a day plus a commission of $P18$ per cake. What linear function represents Camila's income in a day?
   A. $f(x) = 18x + 35$
   B. $f(x) = 18x - 35$
   C. $f(x) = 35x + 18$
   D. $f(x) = 35x - 18$

7. A family buys a case of water with 48 bottles and consumes 5 bottles per day. Which equation shows the number of bottles left after x days?
   A. $f(x) = 5x - 48$
   B. $f(x) = 5x + 48$
   C. $f(x) = 48 + 5x$
   D. $f(x) = 48 - 5x$

8. Lara is 3 years more than twice Jose's age. If Lara is 27 years old, how old is Jose?

   A. 10
   B. 12
   C. 20
   D. 24

9. Maria wants to earn money from garbage. She collected 20 kg of cans to recycle. She wants to collect an additional 5 kg each week. The linear function describing the total weight of cans is given by the function $f(x) = 5x + 20$. What is the total weight of cans Maria will be collected in 10 weeks?

   A. 60 kg
   B. 70 kg
   C. 80 kg
   D. 90 kg

10. A furniture store charges a fee on all items delivered from the store to the customer. The delivery fee $f(x)$ is computed by a linear function $f(x) = 0.06x + 50$, where x denotes the amount purchased. How much is the delivery fee if the customer will purchase $P8{,}000$ worth of furniture?

    A. $P450$
    B. $P470$
    C. $P530$
    D. $P54$

11. In your math class, your teacher asks to make a mathematical model and table of values of the situation below.

Sam currently has 200 songs in his music collection. Every month, he adds 10 new songs. How many song collections will he own in a year?

What criteria will you consider in order to attain a good output?

I. Accuracy
II. Intervals in the Table
III. Completeness of the Label
IV. Appropriateness of the Mathematical Model

   A. I and II only
   B. I, III and IV only
   C. II, III and IV only
   D. I, II, III and IV

12. A videoke machine rental charge is $P500$ per day and an additional $P30$ per hour (t) after a day. Which of the following statements is true?

   A. The problem is represented by the function $f(t) = 30t - 500$.
   B. If the videoke machine will be used in 30 hours, the user will pay $P680$.
   C. The dependent variable is the duration of time that the videoke machine is used.
   D. The independent variable is the amount the user will pay after t hours of using the videoke machine.

For items 13 – 15 refer to the situation below

One of Jenny's favorite movies talks about a pandemic which occurred in a rural village. The table below shows the recorded number of patients recovered from a pandemic caused by a virus in a certain municipality.

Month *(x)*	March	April	May	June	July
No. of recoveries $f(x)$	12	23	34	45	56

13. Which mathematical model represents the data above?
    A. $f(x) = 11x + 1$
    B. $f(x) = -11x + 1$
    C. $f(x) = 12x + 1$
    D. $f(x) = -12x + 1$

14. A front liner in a hospital predicted that if the interval of the number of recoveries per month remains constant, there will be 111 recoveries on Christmas month. Do you agree with the front liner's claim?

    A. Yes, because the front liner is a reliable source.
    B. No, because the remaining patients are old enough to recover.
    C. No, because there is not enough evidence to accept the claim.
    D. Yes, because it can be computed using the constant recoveries per month.

15. The number of recoveries has continued to increase. As a responsible and concerned citizen in your community what would be the best action to maximize the increased number of recoveries.

    I. Always observe and practice proper hygiene.
    II. Let the concern agencies worry the pandemic.
    III. Eat nutritious food to boost immune system.
    IV. Follow health and safety protocols issued by the government.
    V. Organize a free face to face Zumba session in your community to promote physical wellness.

    A. I, III, and IV only
    B. I, II, and V only
    C. II, III, IV and V only
    D. I, III, IV and V only

Additional Activities

I Can Do It Independently!

Directions: Read the situation below and answer the questions that follow.

Tina and Ben challenge each other to do the Marikit Tiktok dance craze and posts it in their respective Facebook account. Donna, their best friend promised to give Php200 each if they do the challenge in social media. They also agreed that every reaction response in social media has a corresponding amount. A like is worth Php1, a heart is Php2, and a wow is Php3. After 24 hours, Tina got 300 likes, 295 hearts, and 109 wows, while Ben got 410 likes, 105 hearts, and 139 wows.

1. Which reaction should be the right choice for Tina to get the highest amount of money? Why?
2. Which reaction should be the right choice for Ben to get the highest amount of money? Why?

Answer Key

What I Know

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

What's In

2. The number of days doing carpentry works is the **independent** variable while the amount Mang Kanor earns is the **dependent** variable.

3. The number of hours Alma walks is the **independent** variable while the number of calories burn is the **dependent** variable.

4. The cost of the laundry is the **dependent** variable while the number of kilograms is the **independent** variable.

5. The number of points earned is the **dependent** variable while the number of baskets made is the **independent** variable.

What's More

Activity 3

1. Php 325 , Php 345 , Php 405 respectively
2. 1.8 hours

What I have Learned

There are many real-life situations that exhibit linear functions. It has one independent variable and one dependent variable. One of the primary reasons people have trouble with problem solving is that there is no single procedure that works all the time. Each problem is slightly different. Also, it requires practical knowledge about the specific situation. If you misunderstand either the problem or the underlying situation you may make mistakes or incorrect assumptions. In solving word problems, the first step is to understand the problem. You have to read and analyze the situation. Next step is to devise a plan. You have to list all the given data and determine what is asked in the problem. Third step is to carry-out the plan. Once you have an idea for a new approach, jot it down immediately. When you have time, try it out and see if it leads to a solution. If the plan does not seem to be working, then start over and try another approach. Often the first approach does not work. Do not worry, just because an approach does not work, it does not mean you did it wrong. You actually accomplished something, knowing a way does not work is part of the process of elimination. Lastly, you have to lookback. Once you have a potential solution, check to see if it works.

Assessment

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

Additional Activities

1. heart reaction
2. wow reaction

What's More

Activity 1: Watch Your Steps!

Step 1.	Understand the Problem
	Given: • **Tony has an initial savings of ₱₱₱ 500.00** • **He needs to save a total amount of ₱₱₱ 2,375.00** • **He plans to save ₱P75 per week**
	Asked: **How many weeks will Tony does Tony ₱₱₱₱ to save?**
	Independent variable: amount of savings per week
	Dependent variable: no. of weeks he has to save
	Let x represents the no. of weeks Tony has to save
	Let $f(x)$ represents the total amount in PhP of Tony's savings
Step 2.	Devise a Plan (Make a model, determine the function rule)
	Let x represents the **no. of weeks** Let $f(x)$ represents the **total amount saved** **Total amount saved** = (savings per week x number of weeks) + **Initial amount of savings** $f(x) = 75x + 500$
Step 3.	Carry out the plan.

	$f(x)$	=	$75x + 500$
	2375	=	$75x + 500$
	$2375 + (-500)$	=	$75x + 500 + (-500)$
	1875	=	$75x$
	$\frac{1875}{75}$	=	$\frac{75x}{75}$
	25	=	x

	Function rule	$75x + 500$	=
	By substitution	$75x + 500$	=
	By Addition Property of Equality	$75x + 500 + (-500)$	=
	By simplification	$75x$	=
	Division Property of Equality	$\frac{75x}{75}$	=
	By simplification	x	=

Step 4.	Look back.
	$f(x) = 75x + 500$ $2375 = 75(25) + 500$ $2375 = 1875 + 500$ $2375 = 2375$ TRUE Hence, Tony needs to save for 25 weeks.

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