

7

# Lesson Exemplar for Mathematics

Quarter 4

Lesson

4

**Lesson Exemplar for Mathematics Grade 7**  
**Quarter 4: Lesson 4 (Week 4)**  
**SY 2024-2025**

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## MATHEMATICS / QUARTER 4 / GRADE 7

| I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES |                                                                                                                                                               |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>A. Content Standards</b>                               | The learners should have knowledge and understanding of the solution of simple equations.                                                                     |
| <b>B. Performance Standards</b>                           | By the end of the quarter, the learners are able to solve simple equations.                                                                                   |
| <b>C. Learning Competencies and Objectives</b>            | <i>Learning Competency</i><br>The learners...<br>1. Illustrate the properties of equality.<br>2. Solve problems involving algebraic expressions and formulas. |
| <b>D. Content</b>                                         | Algebraic Equation (Week 4)<br>2.2 Solving Equations by Applying Properties of Equality<br>2.3 Solving Problems Involving Algebraic Formulas                  |
| <b>E. Integration</b>                                     | Concepts of empathy, fairness, cooperation, justice, and equality<br>Distribution of resources or opportunities in society                                    |

| II. LEARNING RESOURCES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| Department of Education. (2020). <i>Mathematics quarter 2 – module 4: algebraic expressions</i> . (1). k-to-12-grade-7-learning-material-in-mathematics-quarter-3.pdf - Google Drive<br>CK-12 Foundation. (2024, January 11). <i>Evaluating algebraic expressions and equations</i> . <a href="https://flexbooks.ck12.org/cbook/ck-12-algebra-ii-with-trigonometry-concepts/section/1.4/primary/lesson/evaluating-algebraic-expressions-and-equations-alg-ii/">https://flexbooks.ck12.org/cbook/ck-12-algebra-ii-with-trigonometry-concepts/section/1.4/primary/lesson/evaluating-algebraic-expressions-and-equations-alg-ii/</a><br>CueMath. (2024, January 15). <i>Properties of equality</i> . Cuemath. <a href="https://www.cuemath.com/algebra/properties-of-equality/">https://www.cuemath.com/algebra/properties-of-equality/</a><br>National Repository of Online Courses (2023, December 17). <i>Solving one-step equations using properties of equality</i> . LibreTexts Mathematics. <a href="https://math.libretexts.org/Bookshelves/Applied_Mathematics/Developmental_Math_(NROC)/10%3ASolving_Equations_and_Inequalities/10.01%3ASolving_Equations/10.1.01%3ASolving_One-Step_Equations_Using_Properties_of_Equality">https://math.libretexts.org/Bookshelves/Applied_Mathematics/Developmental_Math_(NROC)/10%3ASolving_Equations_and_Inequalities/10.01%3ASolving_Equations/10.1.01%3ASolving_One-Step_Equations_Using_Properties_of_Equality</a> |

| III. TEACHING AND LEARNING PROCEDURE  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | NOTES TO TEACHERS                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <b>A. Activating Prior Knowledge</b>  | <p><b>DAY 1</b></p> <p><b>1. Short Review</b></p> <ol style="list-style-type: none"> <li>Alexa has 24 photo cards. She gives 4 photo cards to each of her friends. How many friends receive the photo cards?</li> <li>Sonny has 6 packs of shuttlecocks. There are 8 shuttlecocks in each pack. How many shuttlecocks are there?</li> <li>Eldan has 4 boxes of pens. Each box has 10 pens. He gives the pen to 8 of his friends. How many pens does each of his friends receive?</li> <li>Henry has 24 one-piece stickers in his collection. Ted has 6 times as many stickers as Henry. How many stickers does Ted have? How many stickers do they have altogether?</li> <li>If John has 26 cards and Tim has 12 more than John's cards, how many cards does Tim have? How many cards are there altogether?</li> </ol> <p><b>2. Feedback (Optional)</b></p> | <p>This section of the review focuses on solving word problems using the bar method.</p> <p>The review can be performed individually or in pairs; For individuals, the learners will prepare their bar modeling to solve the problems.</p> <p>For pair activity:<br/>The teacher will give each learner a strip of paper where one set is a problem and the other set is for the answer using bar modeling. The learners will be roamed around to find their partner.</p> |
| <b>B. Establishing Lesson Purpose</b> | <p><b>1. Lesson Purpose</b></p> <p>Math problems have different ways of solving them, just like how we can share our knowledge and help those who are in need. Translating verbal phrases to algebraic equations is also a tool that will help facilitate the use of different methods in solving unknown values in an algebraic equation.</p> <p>One way of solving a problem that involves algebraic equations is through the use of applying the properties of equalities and some formulas to solve the problems.</p> <p><b>2. Unlocking Content Vocabulary</b></p> <ol style="list-style-type: none"> <li>Algebraic Expression – an expression that is made up of variables and constants along with algebraic operations (addition, subtraction, multiplication, and division).</li> </ol>                                                            | <p>In this part, the teacher will introduce the lesson and its application to daily life.</p>                                                                                                                                                                                                                                                                                                                                                                             |

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|                                                         | <p>2. Algebraic Equations – can be defined as a mathematical statement in which two expressions are set equal to each other.</p> <p>3. Bar model – is one such tool that helps us visualize the given math problem using rectangles or bars.</p> <p>4. Variable – is a letter or symbol that represents an unknown number.</p> <p>5. Equation – is a mathematical statement that two expressions are equal.</p> <p>6. Expressions - are made up of terms, and the number of terms in each expression in an equation may vary.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>The teacher may add other terms which may be used or will arise during the discussion.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p><b>C. Developing and Deepening Understanding</b></p> | <p><b>SUB-TOPIC 2: Solving Equations by Applying Properties of Equality</b></p> <p><b>1. Explicitation</b></p> <p>Translating, writing, and solving equations are crucial aspects of mathematics. Algebraic equations enable teachers and learners to solve problems involving unknown quantities. A key principle in working with algebraic equations is that you can add or subtract the same quantity from both sides of an equation to maintain its balance. This concept is analogous to a balance scale used in the justice system, where equal weight must be given to both sides to ensure fairness and uphold justice for everyone.</p>  <p>Image Source: <a href="#">10.1.1: Solving One-Step Equations Using Properties of Equality - Mathematics LibreTexts</a></p> <p><b>Properties of Equality</b></p> <div style="border: 1px solid green; border-radius: 10px; padding: 10px; margin: 10px 0;"> <p><b>Addition Property of Equality (APE)</b><br/>       For all real numbers <math>a</math>, <math>b</math>, and <math>c</math>, <math>a = b</math> if and only if <math>a + c = b + c</math><br/>       If we add the same number to both sides of the equal sign, then the two sides remain equal.<br/>       Example: <math>10 + 5 = 15</math> is true if and only if <math>10 + 5 + 8 = 15 + 8</math></p> </div> <div style="border: 1px solid green; border-radius: 10px; padding: 10px; margin: 10px 0;"> <p><b>Multiplication Property of Equality (MPE)</b><br/>       For all real numbers <math>a</math>, <math>b</math>, and <math>c</math>, where <math>c \neq 0</math>, <math>a = b</math> if and only if <math>ac = bc</math><br/>       If we multiply the same number to both sides of the equation, then the two sides remain equal.<br/>       Example: <math>3(5) = 15</math> is true if and only if <math>(3)(5) \cdot 2 = 15 \cdot 2</math></p> </div> | <p>The teacher will explain why there is no subtraction and division property of equality. Even though subtracting or dividing the same number from both sides of an equation preserves equality, these cases are already covered by APE and MPE. Subtracting the same number from both sides of an equation is the same as adding a negative number to both sides of an equation. Also, dividing the same number from both sides of an equation is the same as multiplying the reciprocal of the number to both sides of an equation.</p> |

Finding the solutions to equations using properties of equality means finding the unknown so that the equation becomes true. In the given equation  $x - 8 = 15$ , what value of  $x$  will make the expression equal?

$$\begin{aligned}\text{Solution } x - 8 &= 15 \\ x - 8 + 8 &= 15 + 8 \\ x + 0 &= 23 \\ x &= 23\end{aligned}$$

Given  
APE (Adding 8 to both sides)  
Simplify  
Simplify

$$\begin{aligned}\text{Checking:} \\ x - 8 &= 15 \\ 23 - 8 &= 15 \\ 15 &= 15 \quad \text{True}\end{aligned}$$

In the equation  $3x = 42$ , what is  $x$ ?

$$\begin{aligned}\frac{3x}{3} &= \frac{42}{3} \\ x &= 14\end{aligned}$$

MPE (Multiply 1/3 on both sides)  
  
Simplify

$$\begin{aligned}\text{Checking:} \\ 3x &= 42 \\ 3(14) &= 42 \\ 42 &= 42 \quad \text{True}\end{aligned}$$

## 2. Worked Example

Here are more examples of solving equations applying properties of equality.

Example No. 1. Solve for the value of  $x$  in the equation:  $x - 28 = 46$

Solution:

$$\begin{aligned}x - 28 &= 46 \\ x - 28 + 28 &= 46 + 28 \\ x &= 74\end{aligned}$$

Given  
APE (Add 28 on both sides)  
Simplify

$$\begin{aligned}\text{Checking:} \\ x - 28 &= 46 \\ 74 - 28 &= 46 \\ 46 &= 46 \quad \text{True}\end{aligned}$$

Example No. 2. Find the value of the unknown on the equation:  $x + 15 = -44$

Solution:

$$\begin{aligned}x + 15 &= -44 \\ x + 15 - 15 &= -44 - 15 \\ x &= -59\end{aligned}$$

Given  
APE (Add -15 on both sides)  
Simplify

$$\begin{aligned}\text{Checking:} \\ x + 15 &= -44 \\ -59 + 15 &= -44 \\ -44 &= -44 \quad \text{True}\end{aligned}$$

Example No. 3. In the given equation, find the unknown value of the variable.

Solution:

$$\begin{aligned}4x &= 128 \\ 4x \left(\frac{1}{4}\right) &= 128 \left(\frac{1}{4}\right) \\ x &= 32\end{aligned}$$

MPE (Multiply 1/4 on both sides)  
Simplify

$$\begin{aligned}\text{Checking:} \\ 4x &= 128 \\ 4(32) &= 128 \\ 128 &= 128 \quad \text{True}\end{aligned}$$

Example No. 4 In the given equation,  $2x + 15 = x - 3$ , what value of  $x$  will make the equation true?

Solution:

$$\begin{aligned} 2x + 15 &= x - 3 \\ 2x - x + 15 &= x - x - 3 \\ x + 15 &= -3 \\ x + 15 - 15 &= -3 - 15 \\ x &= -18 \end{aligned}$$

Given  
APE (Add  $-x$  on both sides)  
Simplify  
APE (Add  $-15$  on both sides)  
Simplify

Checking:

$$\begin{aligned} 2x + 15 &= x - 3 \\ 2(-18) + 15 &= -18 - 3 \\ -36 + 15 &= -21 \\ -21 &= -21 \\ \text{True} \end{aligned}$$

Example No. 5 Solve for the unknown variable in the given equation.

$$\begin{aligned} 5x - 14 &= 3x + 12 \\ 5x - 3x - 14 &= 3x - 3x + 12 \\ 2x - 14 &= 12 \\ 2x - 14 + 14 &= 12 + 14 \\ 2x &= 26 \\ x &= 13 \end{aligned}$$

Given  
APE (Add  $-3x$  on both sides)  
Simplify  
APE (Add  $14$  on both sides)  
Simplify  
MPE (Multiply  $\frac{1}{2}$  both sides)

Checking:

$$\begin{aligned} 5x - 14 &= 3x + 12 \\ 5(13) - 14 &= 3(13) + 12 \\ 65 - 14 &= 39 + 12 \\ 51 &= 51 \\ \text{True} \end{aligned}$$

Example No. 6 In the given equation  $6 = 2(x - 4)$ , what is the value of  $x$ ?

$$\begin{aligned} 6 &= 2(x - 4) \\ 6 &= 2x - 8 \\ 6 + 8 &= 2x - 8 + 8 \\ 14 &= 2x \\ 14 \div 2 &= 2x \div 2 \\ 7 &= x \end{aligned}$$

Multiply  $2$  by the terms inside the parenthesis  
Simplify  
APE (Add  $-6$  on both sides)  
Simplify  
APE (Add  $-2x$  on both sides)  
Simplify and MPE (Multiply  $-\frac{1}{2}$  on both sides)  
Simplify

Checking:

$$\begin{aligned} 6 &= 2(x - 4) \\ 6 &= 2(7 - 4) \\ 6 &= 2(3) \\ 6 &= 6 \\ \text{True} \end{aligned}$$

## DAY 2

### 3. Lesson Activity

**A. Quality Time.** Paste all the equations with a solution in the boxes below. Arrange the equations in order by their solutions from least to greatest. Then write the letters in order on the lines below to form the word hidden.

|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |
|  |  |  |

### Lesson Activity Answer:

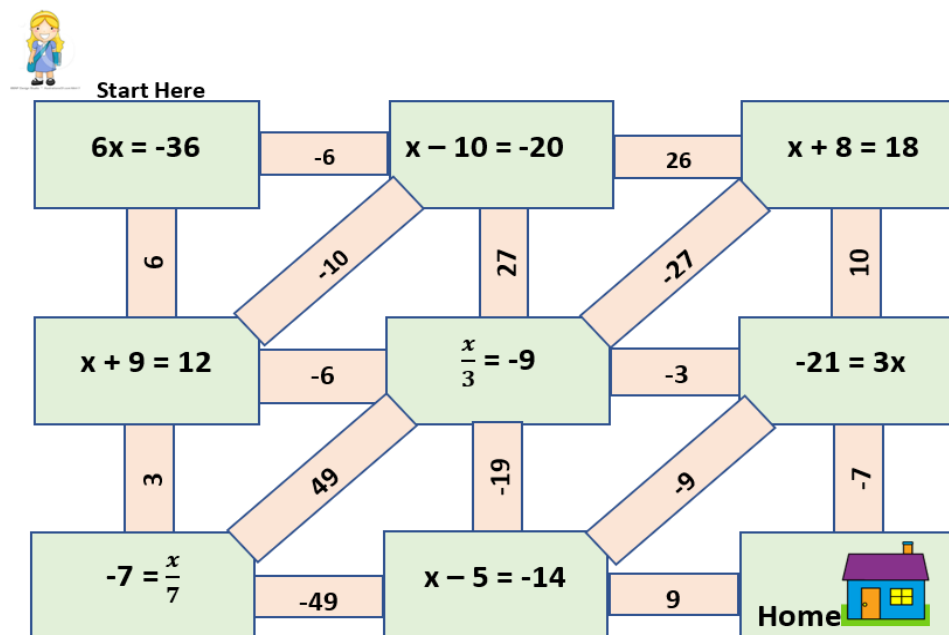
A.  
 $S = 2x + 4 = 18$   
 $x = 7$   
 $E = 3x + 2 = 20$   
 $x = 6$   
 $N = 3x - 2 = 13$   
 $x = 5$

Equations:

|                                |                                |                           |
|--------------------------------|--------------------------------|---------------------------|
| <b>S</b><br>$2x + 4 = 18$      | <b>E</b><br>$3x + 2 = 20$      | <b>N</b><br>$3x - 2 = 13$ |
| <b>A</b><br>$2x + 1 = 3$       | <b>S</b><br>$4x + 5 = 3x + 15$ | <b>F</b><br>$12x = -144$  |
| <b>R</b><br>$6x + 5 = 4x + 13$ | <b>I</b><br>$6 = 3(x - 1)$     |                           |

Reflections: What can you say about the word found?

**B. Help Me!** Let us help Shaina find her easy way home. The other way she was using was closed due to the pavement of the road, so she needed to find another way to go home. To help Shaina, let us solve the following equations and find the correct route going to their home.



$$A = 2x + 1 = 3$$

$$x = 1$$

$$S = 4x + 5 = 3x + 15$$

$$x = 10$$

$$F = 12x = -144$$

$$x = -12$$

$$R = 6x + 5 = 4x + 13$$

$$x = 4$$

$$I = 6 = 3(x - 1)$$

$$x = 3$$

$$F = -12$$

$$A = 1$$

$$I = 3$$

$$R = 4$$

$$N = 5$$

$$E = 6$$

$$S = 7$$

$$S = 10$$

**Lesson Activity Answer:**

B.

$$6x = -36; x = -6$$

$$x - 10 = -20; x = -10$$

$$x + 9 = 12; x = 3$$

$$-7 = x/7; x = -49$$

$$x - 5 = -14; x = -9$$

$$-21 = 3x; x = -7$$

**DAY 3****SUB-TOPIC 3: Solving problems involving Algebraic Formulas****1. Explicitation**

There are several ways to solve problems involving algebraic equations. Identify the appropriate formula that applies to the given statement. This involves determining which formula relates the given quantities to the unknown quantities. Once you have identified the correct formula, substitute the given data into it, and then solve for the unknown variable.

Integration of algebraic formulas in daily life can occur in various scenarios such as budgeting and finance, adjusting ingredient quantities in recipes, home improvement, health and fitness, travel planning, shopping and discounts, and many more. Algebraic formulas are universal and play a crucial role in problem-solving across various areas. Solving problems involving algebraic formulas naturally involves the following steps:

1. Understand the problem- read and check what is the problem all about and what information is given.
2. Identify variables – what does each variable represent?
3. Write the equations- use the given information to write equations that will represent the problem using algebraic formulas.
4. Solve the equations.
5. Check your solution.
6. Interpret the solution.

By following the steps scientifically, you can efficiently solve problems involving algebraic formulas.

**2. Worked Example**

Example No. 1

When 23 is decreased from 5 times a number, the result is 57. Find the number.

Solution:

Let  $x$  = be the number

Equation:  $5x - 23 = 57$

$$5x - 23 + 23 = 57 + 23$$

$$5x = 80$$

$$5x \left(\frac{1}{5}\right) = 80 \left(\frac{1}{5}\right)$$

$$x = 16$$

Therefore, the number is 16

Mathematical translation of the problem

APE (Add 23 from both sides)

Simplify

MPE (Multiply  $\frac{1}{5}$  on both sides)

Simplify

Worked example

Checking:

$$5x - 23 = 57$$

$$5(16) - 23 = 57$$

$$80 - 23 = 57$$

$$57 = 57$$

True

Example No. 2

If Alexa wants to save Php 500 each month and currently has saved Php 200, how many months will it take her to reach her goal of saving Php 3200?

Let  $x$  = be the number of months she will reach her goal

Equation:  $500x + 200 = 3200$

Solution:

$$500x + 200 = 3200$$

$$500x + 200 - 200 = 3200 - 200$$

Add - 200 on both sides

$$500x \left(\frac{1}{500}\right) = 3000 \left(\frac{1}{500}\right)$$

Multiply both sides by  $\left(\frac{1}{500}\right)$

$$x = 6$$

Simplify

Therefore, Alexa needs 6 months to reach her goal.

Checking:

$$500x + 200 = 3200$$

$$500(6) + 200 = 3200$$

$$3000 + 200 = 3200$$

$$3200 = 3200$$

True

### 3. Lesson Activity

#### Activity 1: Solve Me!

Read and analyze the problem, then answer the question that follows.

1. The sum of a number and 20 is three times the number, what is the number?
2. If the perimeter of a square garden is 48 m., what is the length of each side of the garden?
3. Tina had Php 300.00 in her wallet. She bought 4 ribbons worth  $x$  pesos each. If the money left in her wallet is Php 100.00, how much is the price of each ribbon?
4. A student gave the solution to the given equation  $-14 = 3x - 2$ . Check if the answer is correct.

$$-14 = 3x - 2$$

$$-14 + 2 = 3x - 2 + 2$$

$$-12 = 3x$$

$$-12 \left(\frac{1}{3}\right) = 3x \left(\frac{1}{3}\right)$$

$$-4 = x$$

- a. Is the solution correct?
- b. Did you find the value of the unknown?
- c. Do you have suggestions for making the solution simpler?

#### Activity 1 Answer:

$$1. \begin{aligned} x + 20 &= 3x \\ x &= 10 \end{aligned}$$

$$2. \begin{aligned} P &= 4s \\ 48m &= 4s \\ s &= 12m \end{aligned}$$

$$3. \begin{aligned} (300 - 100)/4 &= x \\ x &= 50.00 \end{aligned}$$

$$4. \begin{aligned} a. & \text{ Yes} \\ b. & x = -4 \\ c. & \begin{aligned} -14 &= 3x - 2 \\ -14 + 2 &= 3x \\ -12 &= 3x \\ -4 &= x \end{aligned} \end{aligned}$$

|                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                     |                                       |                                                                   |                                                         |                                           |                                                                  |                                                              |                                        |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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|                                                              | <p><b>Activity 2: Find Someone</b></p> <p>Students will be given 5-10 minutes to complete their card. Go around the room and ask the help of their classmates to solve one task on the card. Write the correct answer and the name of his/her classmate in the box where the equation is located.</p> <table border="1"> <tr> <td>Value of x that can make the equation true if <math>x + 8 = 24</math></td><td>Can give the value of x in <math>3x = -24</math></td><td>Can give the value of x so that <math>2x + 8 = 32</math> is a true equation.</td></tr> <tr> <td>Value of x that can make the equation true if <math>3x = 75</math></td><td>Can give the value of x in <math>-6x - 4 = 16</math></td><td>Can give the value of x so that <math>2x + 5 = 7</math> is a true equation.</td></tr> <tr> <td>Value of x that can make the equation true if <math>5x + 4 = -11</math></td><td>Can give the value of x in <math>12x = 144</math></td><td>Can give the value of x so that <math>2(x + 5) = 32</math> is a true equation.</td></tr> </table> | Value of x that can make the equation true if $x + 8 = 24$                                                                                                                                                                                                                                                                                                                          | Can give the value of x in $3x = -24$ | Can give the value of x so that $2x + 8 = 32$ is a true equation. | Value of x that can make the equation true if $3x = 75$ | Can give the value of x in $-6x - 4 = 16$ | Can give the value of x so that $2x + 5 = 7$ is a true equation. | Value of x that can make the equation true if $5x + 4 = -11$ | Can give the value of x in $12x = 144$ | Can give the value of x so that $2(x + 5) = 32$ is a true equation. | <p><b>Activity 2 Answer:</b></p> <p><math>x + 8 = 24</math>; <math>x = 16</math></p> <p><math>3x = -24</math>; <math>x = -8</math></p> <p><math>2x + 8 = 32</math><br/> <math>2x = 24</math><br/> <math>x = 12</math></p> <p><math>3x = 75</math>; <math>x = 25</math></p> <p><math>6x - 4 = 16</math>; <math>x = -10/3</math></p> <p><math>5x + 4 = -11</math>; <math>x = -5/16</math></p> <p><math>12x = 144</math>; <math>x = 12</math></p> <p><math>2(x+5) = 32</math>; <math>x = 11</math></p> |
| Value of x that can make the equation true if $x + 8 = 24$   | Can give the value of x in $3x = -24$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Can give the value of x so that $2x + 8 = 32$ is a true equation.                                                                                                                                                                                                                                                                                                                   |                                       |                                                                   |                                                         |                                           |                                                                  |                                                              |                                        |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Value of x that can make the equation true if $3x = 75$      | Can give the value of x in $-6x - 4 = 16$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Can give the value of x so that $2x + 5 = 7$ is a true equation.                                                                                                                                                                                                                                                                                                                    |                                       |                                                                   |                                                         |                                           |                                                                  |                                                              |                                        |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Value of x that can make the equation true if $5x + 4 = -11$ | Can give the value of x in $12x = 144$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Can give the value of x so that $2(x + 5) = 32$ is a true equation.                                                                                                                                                                                                                                                                                                                 |                                       |                                                                   |                                                         |                                           |                                                                  |                                                              |                                        |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>D. Making Generalizations</b></p>                      | <p><b>DAY 4</b></p> <p><b>1. Learners' Takeaways</b></p> <p>Sample Questions:</p> <p>A. Let the learners answer the following questions.</p> <ol style="list-style-type: none"> <li>Why do we need to check if the obtained value of the variable is true?</li> <li>Why is there no Subtraction and Division Property of Equality?</li> <li>Is the bar method effective in analyzing what to do on the equation?</li> </ol> <p>B. Let the learner solve the following. Analyze if the given solution is correct. On the given equation <math>-3(x - 4) = -5x - 2</math>. Check if the answer is correct.</p> <p>Solution: <math>-3(x - 4) = -5x - 2</math><br/> <math>-3x - 12 = -5x - 2</math><br/> <math>-3x + 5x = -2 + 12</math><br/> <math>2x = 10</math><br/> <math>2x \left(\frac{1}{2}\right) = 10 \left(\frac{1}{2}\right)</math><br/> <math>x = 5</math></p> <ol style="list-style-type: none"> <li>Is the value of x correct? If yes, prove it. If no show your solution and check.</li> </ol>                                                   | <p>Check the learner takeaways by giving them questions that they will reflect on. This is to check whether they fully understand the lesson. The teacher can give additional exercises or activities they will work on either in a group or in pairs.</p> <p>B.</p> <p><math>-3x - 12 = -5x - 2</math><br/> this should be:<br/> <math>-3x + 12 = -5x - 2</math></p> <p>1. No.</p> |                                       |                                                                   |                                                         |                                           |                                                                  |                                                              |                                        |                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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|  | <p><b>2. Reflection on Learning</b></p> <p>Let the student prepare their reflection journal. Let them reflect on their experience using the bar method in analyzing the equation and finding the unknown value of the variable. Talk about the essence: why do they always need to check the value of the unknown that they have solved? What is the application of solving equations involving algebraic formulas and properties of equality? How can they apply it in their daily life?</p> | <p>The teacher may add more questions as the learners reflect on what they have gained from the lesson. Let them share with the class or with a classmate.</p> |
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| IV. EVALUATING LEARNING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | NOTES TO TEACHERS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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| <b>A. Evaluating Learning</b>                                          | <p><b>1. Formative Assessment</b></p> <p>A. Answer the following, show your solution, and check.</p> <ol style="list-style-type: none"> <li>What is the value of <math>y</math> in the algebraic equation <math>2y + 4 = 16</math> using the properties of equality?</li> <li>What property of equality can we use to solve the given equation <math>4x = 28</math>?</li> <li>Thirty-five more than 8 times a number is the same as 40 less than the product of -7 and the number. What is the number?</li> <li>What is wrong with the given equation? Explain then make necessary corrections. <math display="block">2a - 5 = 17</math> <math display="block">2a - 5 + 5 = 17 - 5</math> <math display="block">2a = 12</math> <math display="block">a = 6</math> </li> <li>Alexa has invested part of Php 30,000.00 at 5% interest and has deposited the rest at 6% interest in the bank. If her investment gives her an annual income of Php 1,620.00, how much has she invested in each?</li> <li>The difference between the two numbers is 67. The larger number is 3 less than six times the smaller number. Find the two numbers.</li> <li>The age of Alex is 4, more than 3 times the age of Sonny. The sum of their ages is 32. Find their ages.</li> </ol> <p>B. Find the value of the unknown variable.</p> <ol style="list-style-type: none"> <li><math>x + 5 = 3</math></li> <li><math>2x + 7 = 35</math></li> <li><math>x - 8 = 31</math></li> <li><math>5 + x = 2x - 9</math></li> </ol> | <ol style="list-style-type: none"> <li><math>y = 6</math><br/>Check: <math>2(6) + 4 = 16</math><br/><math>12 + 4 = 16</math><br/><math>16 = 16</math></li> <li>Multiplication Property<br/><math>4x = 28</math><br/><math>x = 7</math></li> <li><math>x = 1</math></li> <li><math>2a - 5 = 17</math><br/><math>2a - 5 + 5 = 17 + 5</math><br/><math>2a = 22</math><br/><math>a = 11</math></li> <li><math>0.05x + 0.06(30,000 - x) = 1620</math><br/><math>x = 18,000</math><br/>18,000 is the amount invested at 5% and<br/>12,000 is the amount invested at 6%</li> <li><math>(6x - 3) - x = 67</math><br/><math>x = 14</math><br/>larger number = 81</li> <li><math>x + 3x + 4 = 32</math><br/><math>x = 7</math><br/>Sonny is 7 years old<br/>Alex is 25 years old</li> </ol> |

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|                                | <p>5. <math>-7 - x = 5x - 37</math><br/> 6. <math>3x + 4 = 46</math><br/> 7. <math>x - 1 = 9</math><br/> 8. <math>2x + 6 = x - 9</math><br/> 9. <math>8 + x = 38 - 2x</math><br/> 10. <math>x - 25 = 20 + 2x</math></p> <p><b>2. Homework (Optional)</b></p>                                                                                                                                                                                                                                       |                            |                             | <p>B.</p> <p>1. <math>x = -2</math><br/> 2. <math>x = 14</math><br/> 3. <math>x = 39</math><br/> 4. <math>x = -14</math><br/> 5. <math>x = 5</math><br/> 6. <math>x = 14</math><br/> 7. <math>x = 10</math><br/> 8. <math>x = -15</math><br/> 9. <math>x = 10</math><br/> 10. <math>x = -45</math></p>                       |
| <b>B. Teacher's Remarks</b>    | <i>Note observations on any of the following areas:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Effective Practices</b> | <b>Problems Encountered</b> | <p>The teacher may take note of some observations related to the effective practices and problems encountered after utilizing the different strategies, materials used, learner engagement, and other related stuff.</p> <p>Teachers may also suggest ways to improve the different activities explored/lesson exemplar.</p> |
|                                | <b>strategies explored</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                            |                             |                                                                                                                                                                                                                                                                                                                              |
|                                | <b>materials used</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                            |                             |                                                                                                                                                                                                                                                                                                                              |
|                                | <b>learner engagement/ interaction</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |                             |                                                                                                                                                                                                                                                                                                                              |
|                                | <b>others</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                            |                             |                                                                                                                                                                                                                                                                                                                              |
| <b>C. Teacher's Reflection</b> | <p><i>Reflection guide or prompt can be on:</i></p> <ul style="list-style-type: none"> <li><u>principles behind the teaching</u><br/> What principles and beliefs informed my lesson?<br/> Why did I teach the lesson the way I did?</li> <li><u>students</u><br/> What roles did my students play in my lesson?<br/> What did my students learn? How did they learn?</li> <li><u>ways forward</u><br/> What could I have done differently?<br/> What can I explore in the next lesson?</li> </ul> |                            |                             | <p>Teacher's reflection in every lesson conducted/facilitated is essential and necessary to improve practice. You may also consider this as an input for the LAC/Collab sessions.</p>                                                                                                                                        |