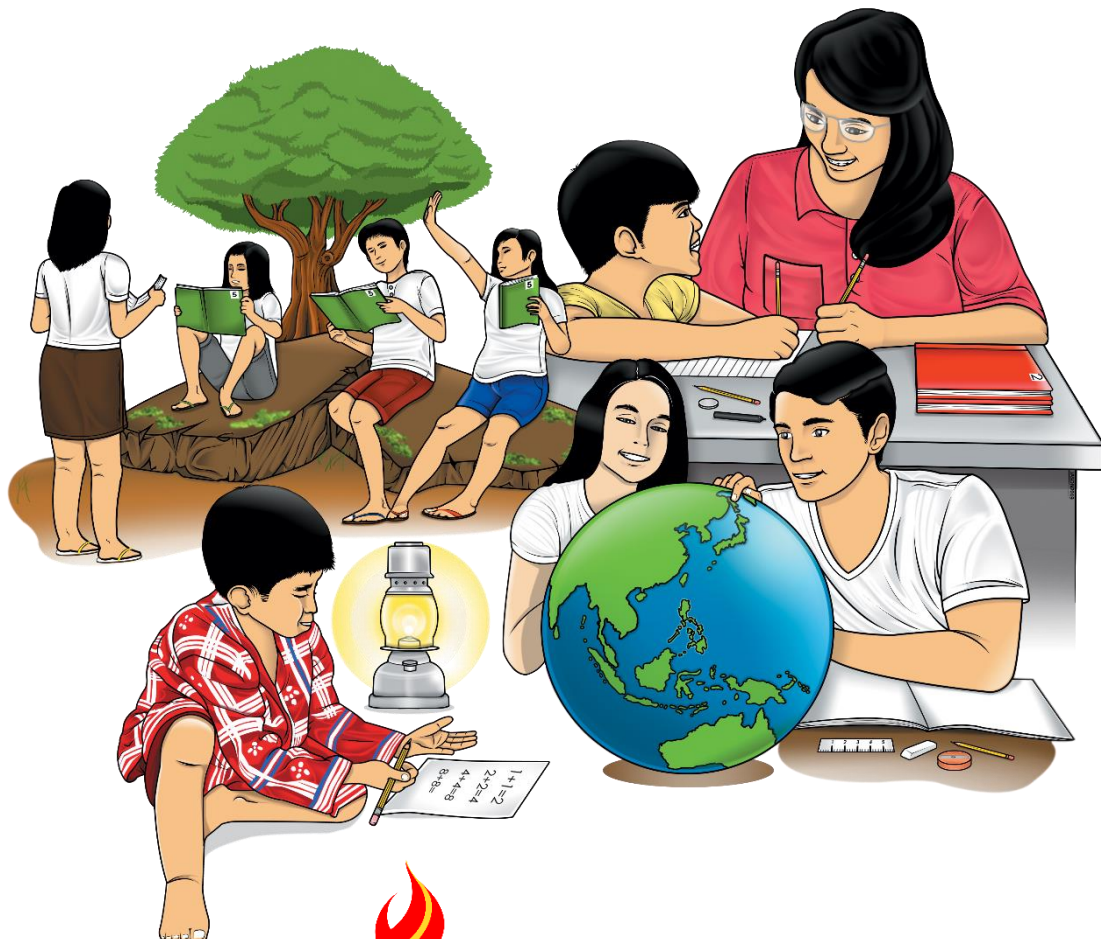


Mathematics

Quarter 3 – Module 6: Finding the Missing Number in an Equation



Mathematics – Grade 4
Alternative Delivery Mode
Quarter 3 – Module 6: Finding the Missing Number in an Equation
First Edition, 2020

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Quarter 3 – Module 6: Finding the Missing Number in an Equation

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

From the previous quarter, you have already learned how to find the missing term/s in a sequence of numbers/figures and give/state the rule in determining the missing term/s in a sequence.

As you explore this new lesson, you will learn about finding the missing number in an equation involving properties of operations. Read on and explore to see how your knowledge in the properties of operations would help you solve the equations in every activity in this module.

At the end of this module, you should be able to:

- find the missing number in an equation involving properties of operations.



What I Know

Find the missing number in a number sentence involving operations of whole numbers.

1. $5 + \underline{\quad} = 55$

4. $15 \times 3 = \underline{\quad}$

2. $\underline{\quad} - 12 = 20$

5. $\underline{\quad} + 7 = 13$

3. $3 + \underline{\quad} + 5 = 15$



What's In

What property of operation is expressed in the following equations? Choose your answer from the box on the side.

1. $0 \times 1 = 0$

2. $2 \times 3 = 3 \times 2$

3. $1 \times 5 = 5$

4. $2 + (4 + 5) = (2 + 4) + 5$

5. $3 \times (2 + 4) = (3 \times 2) + (3 \times 4)$

Commutative Property
Associative Property
Zero Property
Identity Property
Distributive Property of Multiplication
over Addition



What's New

An **equation** is a mathematical sentence that states the equality of expressions.

Look at these equations. Could you give the missing number/s?

A. $(10 \times 2) + (10 \times 5) = \underline{\quad} \times (\underline{\quad} + 5)$

B. $(40 + 5) + (\underline{\quad} + 15) = (\underline{\quad} + 15) + (40 + 30)$

How will you make each equation correct? **Try to evaluate each equation.**

In the first equation, you will use the **Distributive Property of Multiplication over Addition**:

$$\begin{array}{r} | \\ \text{A. } (10 \times 2) + (10 \times 5) = \underline{10} \times (\underline{2} + 5) \\ 20 \quad + \quad 50 = 10 \times 7 \\ 70 = 70 \end{array}$$

In the second equation, you will use the **Commutative Property and Associative Property of Addition**:

$$\begin{array}{r} \text{B. } (40 + 5) + (\underline{30} + 15) = (\underline{5} + 15) + (40 + 30) \\ 45 \quad + \quad 45 = 20 \quad + \quad 70 \\ 90 = 90 \end{array}$$

Note:



The properties of operations help us find the missing numbers in an equation. We can evaluate an equation by performing the operations in each expression.



What is It

READ AND LEARN MORE

Let us take a look at some other examples.

Example #1:

$$\begin{aligned}(8 \times 5) \times 4 &= \underline{8} \times (5 \times \underline{4}) \\ 40 \times 4 &= 8 \times 20 \\ 160 &= 160\end{aligned}$$

Here, we use the **Associative Property of Multiplication** which provides that you can multiply numbers regardless of how they are grouped and get the same product.

$$\begin{aligned}32 + \underline{59} + 8 &= 32 + \underline{8} + 59 \\ 99 &= 99\end{aligned}$$

Here we use the **Commutative Property** which states that the order in which the numbers are added does not affect the sum.

Example #2

Filipinos are known for being resilient. That is why, even if many people lost their jobs during this pandemic, many have found ways to earn a living for their family to survive. Francisco family thought of raising chickens as their source of income, so they gathered 48 big bamboos and 28 small bamboos for their poultry house. How many bamboos did they gather? Show the addition sentence in two ways.

- How many big bamboos did they gather? How about the small bamboos?
 - They gathered 48 big bamboos and 28 small bamboos.
- Number sentence
 - $48 + 28 = 76$
 - $28 + 48 = 76$

- Does the sum changes? Why?
 - No, because based from the Commutative Property of Addition, changing the order of the addends does not change the sum.

Example #3

2

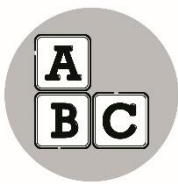
Brgy. Katipunan distributed facemasks in three different *Puroks* namely Magalang, Masigasig, and Matapang. If the first two *Puroks* received 9 and 8 boxes of facemasks, respectively, how many boxes of facemasks will *Purok Matapang* gets if the total number of boxes of facemasks is 45? Write the number sentence in two ways and solve it.

- How many boxes of facemasks did *Purok Magalang* receive? How about *Purok Masigasig*?
 - *Purok Magalang* received 9 boxes of facemasks while *Purok Masigasig* received 8 boxes.
- Write the number sentence.
 - $9 + (8 + \underline{28}) = 45$
 - $(9 + 8) + \underline{28} = 45$
- Does the sum changes? Why?
 - No, because based from the Associative Property of Addition, changing the grouping of the addends does not change the sum.

Example #4

Rene earns ₱120.00 per day by working every morning as a dishwasher at Linda's Café and ₱250.00 a day by working every afternoon as a cook at Gloria's Diner. If he works for 5 days a week in both places, how much is his earning in a week?

- What are the jobs of Rene?
 - Dishwasher and Cook
- How much does he earn as a dishwasher? As a cook?
 - He earns ₱120.00 per day as a dishwasher and ₱250.00 per day as a cook.
- How many days does he work in a week?
 - 5 days
- What is the number sentence?
 - $(5 \times 120) + (5 \times 250) = 1\ 850$
 - $5 \times (120 + 250) = 1\ 850$
- What property is used to solve the problem?
 - Distributive Property of Multiplication Over Addition



What's More

Find the missing number/s that would make the equation correct then identify the properties of operation involved. Write your answer in your notebook.

1. $12 + 24 + 34 = 34 + 12 + \underline{\hspace{1cm}}$

2. $2 \times (15 + 20) = (\underline{\hspace{1cm}} \times 15) + (2 \times \underline{\hspace{1cm}})$

3. $8 \times 7 = \underline{\hspace{1cm}} \times 8$

4. $24 + \underline{\hspace{1cm}} = 5 + \underline{\hspace{1cm}}$

5. $(\underline{\hspace{1cm}} \times 5) \times 4 = 8 \times (\underline{\hspace{1cm}} \times 4)$

If you are done answering the activity, please go to the **Answer Key** and check if your answers are correct.

Thank you for your honesty in answering and checking your work. Hope you will do this until the end of this module.



What I Have Learned

What is an equation? What should you remember in finding the missing numbers in an equation? Is there a need to evaluate an equation?



An **equation** states equality of two expressions separated by an equal sign. The **Properties of Operations** help us find the missing numbers in an equation. We can evaluate an equation by performing the operations in each expression.



What I Can Do

On a separate sheet of paper fill in the blank with the missing number/s that will make the equations true using the properties of operations.

1. $__ \times (4 + 8) = (2 \times __) + (2 \times __)$
2. $6 + 10 + 12 + 24 = (__ + __) + (6 + 24)$
3. $(7 \times 1) + 0 = __ \times (1 + __)$
4. $12 \times __ = __ \times 15$
5. $__ + 240 = 460 + __$

If you are done answering the activity, please go to the ***Answer Key*** and check if your answers are correct.

Thank you for your honesty in answering and checking your work. Hope you will do this until the end of this module.



Assessment

Give the property of operations used in each equation. Then, write the missing number/s.

1. $(6 + 12) + (5 + 7) = (5 + __) + (__ + 12)$ _____
2. $(7 \times 6) \times 5 = __ (6 \times __)$ _____
3. $20 + __ = 40 + __$ _____
4. $24 + (36 + 50) = (__ + __) + 50$ _____
5. $7 \times (10 + 5) = (__ \times 10) + (7 \times __)$ _____

Check your answer with the answer key. If you get...

4- 5 Excellent! You may now proceed to the next lesson.

2- 3 You need to review the processes you missed.

0-1 You need to repeat the whole process. Ask your teachers or parents to help you.



Additional Activities

In a separate sheet of paper, fill in the blank with the missing number/s to make the equations correct. Use the hint provided.

- $(3 + 2) + 20 = \underline{\quad} + (\underline{\quad} + 20)$ (Associative)
- $6 \times (5 + 10) = (\underline{\quad} \times 5) + (6 \times \underline{\quad})$ (Distributive)
- $(45 + 0) + (1 \times 50) = (\underline{\quad} + 0) + (1 \times \underline{\quad})$ (Identity/Zero)
- $9 \times \underline{\quad} = 5 \times \underline{\quad}$ (Commutative)
- $(8 \times \underline{\quad}) \times 5 = \underline{\quad} \times (6 \times 5)$ (Associative)

Check your answers with the **Answer Key**.

If you get all the items correctly, you may now proceed to the next module.

Otherwise, review the lessons and ask the guidance of your teachers or parents.



Answer Key

1. $(3 + 2) + 20 = \overline{3} + \overline{2} + 20$ - Associative Property
2. $6 \times (5 + 10) = \overline{6} \times \overline{5} + (6 \times \overline{10})$ - Distributive Property
3. $(45 + 0) + (1 \times 50) = (\overline{45} + 0) + (1 \times \overline{50})$ - Identity/Zero Property
4. $9 \times \overline{5} = 5 \times \overline{9}$ - Commutative Property
5. $(8 \times \overline{6}) \times 5 = \overline{8} \times (6 \times 5)$ - Associative Property

Additional Activities

1. $(6 + 12) + (5 + 7) = 95 + \overline{7} + (\overline{6} + 12)$ - Associative Property
 2. $(7 \times 6) \times 5 = \overline{7} \times (6 \times \overline{5})$ - Associative Property
 3. $20 + \overline{40} = 40 + \overline{20}$ - Commutative Property
 4. $24 + (36 + 50) = (\overline{24} + \overline{36}) + \overline{50}$ - Associative Property
 5. $7 \times (10 + 5) = (\overline{7} \times \overline{10}) + (\overline{7} \times \overline{5})$ - Distributive Property of Multiplication
- Over Addition

Assessment

1. $\overline{2} \times (4 + 8) = (2 \times \overline{4}) + (2 \times \overline{8})$
2. $6 + 10 + 12 + 24 = (10 + 12) + (6 + 24)$
3. $(7 \times 1) + 0 = \overline{7} \times (1 + \overline{0})$
4. $12 \times \overline{15} = \overline{12} \times 15$
5. $\overline{460} + 240 = 460 + \overline{240}$

What I Can Do

1. $12 + 24 + 34 = 34 + 12 + \overline{24}$ - Commutative Property
 2. $2 \times (15 + 20) = (\overline{2} \times 15) + (2 \times \overline{20})$ - Distributive Property of Multiplication
- Over Addition
3. $8 \times 7 = \overline{7} \times 8$ - Commutative Property
 4. $24 + \overline{5} = 5 + \overline{24}$ - Commutative Property
 5. $(\overline{8} \times 5) \times 4 = 8 \times (\overline{5} \times 4)$ - Associative Property

What's More

1. $5 + \overline{50} = 55$
 2. $\overline{32} - 12 = 20$
 3. $3 + \overline{7} + 5 = 15$
 4. $15 \times 3 = \overline{45}$
 5. $\overline{6} + \overline{7} = 13$
- Over Addition

What I Know

What's In

1. Zero Property
2. Commutative Property
3. Identity Property
4. Associative Property
5. Distributive Property of Multiplication

References

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pp. 171-172, Department of Education

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