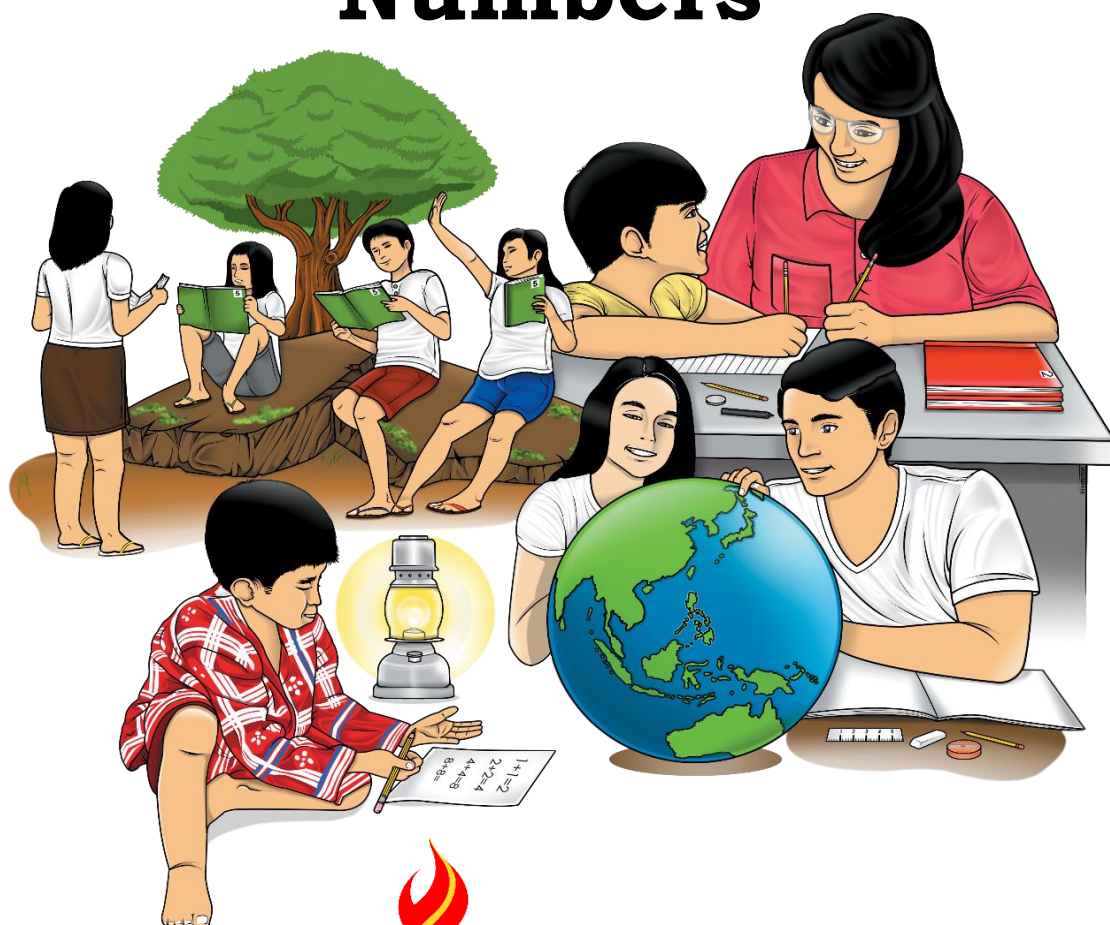


# Mathematics

## Quarter 1 – Module 7: Multiplying Mentally 2-digit by 1- to 2-digit Numbers



**Mathematics Grade-4****Alternative Delivery Mode****Quarter 1 – Module 7: Multiplying Mentally 2-digit by 1- to 2-digit Numbers****First Edition, 2020**

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Published by the Department of Education

Secretary: Leonor Magtolis Briones

Undersecretary: Diosdado M. San Antonio

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**Printed in the Philippines by** \_\_\_\_\_

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**Mathematics**  
**Quarter 1 – Module 7:**  
**Multiplying Mentally**  
**2-digit by 1- to 2-digit**  
**Numbers**

## **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***

You use place value understanding and visual representations to solve multiplication sentences. As a key area focus in this module, you will learn how to answer a multiplication sentence mentally through a different strategy other than using the place value of the numbers given.

After going through this module, you are expected to:

- multiply mentally 2-digit by 1-to 2-digit numbers with products up to 200.



## ***What I Know***

Multiply mentally.

1.  $7 \times 6 =$

2.  $3 \times 8 =$

3.  $5 \times 12 =$

4.  $10 \times 4 =$

5.  $12 \times 6 =$

6.  $14 \times 3 =$

7.  $23 \times 2 =$

8.  $14 \times 11 =$

9.  $22 \times 9 =$

10.  $13 \times 12 =$

Are you done answering? If yes, time to check.

Please go to page 8 for the ***Answer Key***.



## ***What's In***

Before we proceed with our new lesson, let's have a review on multiplying 2-digit numbers by 1- to 2-digit numbers.

Give the product.

$$\begin{array}{r} 1. \ 64 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \ 13 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \ 21 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \ 12 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \ 15 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \ 23 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \ 13 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \ 11 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \ 10 \\ \times 12 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \ 25 \\ \times 3 \\ \hline \end{array}$$

Are you done answering? If yes, time to check.  
Please go to page 8 for the **Answer Key**.



## ***What's New***

Let's start our new lesson with a story problem.

Please read carefully and analyze the problem.

Jayson planted 3 rows of seedlings in pots. Each row had 12 seedlings. How many seedlings did he plant in all?



What did Jayson plant in pots?

How many rows of seedlings are there?

How many seedlings does each row have?

What is asked in the problem?

How can we mentally find the answer to this problem?



## ***What is It***

Before we discuss the processes used to find the answer to the problem presented, let us first answer the comprehension questions presented earlier.

- What did Jayson plant in pots?
  - *Jason planted seedlings in pots.*
- How many rows of seedlings are there?
  - *There are 3 rows of seedlings.*
- How many seedlings does each row have?
  - *There are 12 seedlings in each row.*
- What is asked in the problem?
  - *The number of seedlings planted in all*

Now, there are two ways to mentally find the answer to the problem presented. Let us study how to multiply numbers mentally.

Study the solutions below.

- Solution 1:

### **Multiplying the numbers using place value**

- |     |   |   |
|-----|---|---|
| 12  | → | multiply mentally the multiplier by the ones in the multiplicand ( $3 \times 2 = 6$ )   |
| x 3 | → | multiply mentally the multiplier by the tens in the multiplicand ( $3 \times 10 = 30$ ) |
| 36  | → | add mentally the partial products ( $6 + 30 = 36$ )                                     |

- Solution 2:

### **Multiplying the numbers using distributive property**

$$\begin{aligned}
 & \text{12} \times 3 = (\text{10} + \text{2}) \times 3 \longrightarrow \text{regroup 12 into tens and ones} \\
 & \hspace{10em} (12 = 10 + 2) \\
 & \hspace{10em} = (\text{10} + \text{2}) \times 3 \longrightarrow \text{multiply mentally the} \\
 & \hspace{10em} \text{multiplier (3) by the tens and} \\
 & \hspace{10em} \text{ones of the multiplicand} \\
 & \hspace{10em} = (\text{10} \times 3) + (\text{2} \times 3) \\
 & \hspace{10em} = \text{30} + \text{6} \longrightarrow \text{add the partial products} \\
 & \hspace{10em} = \text{36} \longrightarrow \text{final answer}
 \end{aligned}$$

Other examples:

- Let us multiply mentally the following numbers using place value.

16  $\longrightarrow$  Multiply mentally the multiplicand by the ones in the multiplier

$$(16 \times 2 = 32)$$

x 12  $\longrightarrow$  Multiply mentally the multiplicand by the tens in the multiplier

$$(16 \times 10 = 160)$$

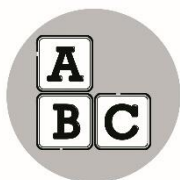
**192**  $\longrightarrow$  Add mentally the partial products.  $(32 + 160 = 192)$

- By Distributive Property

$$\begin{aligned}
 16 \times 12 &= (10 + 6) \times 12 \\
 &= (10 \times 12) + (6 \times 12) \\
 &= \quad 120 \quad + \quad 72 \\
 &= \text{192}
 \end{aligned}$$

***Did you find it easy?***  
***Time to apply what you have learned.***





## ***What's More***

Give the products of each pair of factors mentally. You may use any of the two methods previously discussed.

1. 15

x 12

2. 13

x 11

3. 14

x 13

4. 12

x 14

5. 22

x 5

Are you done answering? If yes, time to check.

Please go to page 8 for the ***Answer Key***.



## ***What I Have Learned***

How do we multiply mentally 2-digit by 1-to 2-digit numbers with products up to 200?

- ✓ There are two solutions or strategies that can be used to multiply mentally 2-digit by 1-to 2-digit numbers with products up to 200. The following are the steps for each strategy.
  - **Solution 1:** Multiplying the numbers using place value
    - a. Multiplying mentally 2-digit by 1-digit
      - Multiply mentally the multiplier by the ones in the multiplicand.

- Multiply mentally the multiplier by the tens in the multiplicand.
- Add the two partial products to get the final answer.

b. Multiplying mentally 2-digit by 2-digit

- Multiply mentally the multiplicand by the ones in the multiplier.
- Multiply mentally the multiplicand by the tens in the multiplier.
- Add mentally the partial products to get the final answer.

○ **Solution 2:** Use the distributive property.

- Regroup the multiplicand into tens and ones.
- Multiply mentally the tens by the multiplier.
- Multiply mentally the ones by the multiplier.
- Add mentally the partial products to get the final answer.



### ***What I Can Do***

Give the products by multiplying the numbers mentally:

$$\begin{array}{r} 1. \quad 26 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 34 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 14 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 12 \\ \times 16 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 11 \\ \times 12 \\ \hline \end{array}$$



## Assessment

Without the use of paper and pencil, give the products of the following.

$$\begin{array}{r} 1. \quad 19 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 11 \\ \times 18 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 15 \\ \times 11 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 14 \\ \times 12 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 16 \\ \times 11 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 75 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 17 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 32 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 15 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 23 \\ \times 7 \\ \hline \end{array}$$



## Additional Activities

Read and solve the following problems mentally.

1. Liza can sew 5 dresses in a day. How many dresses can she sew in a month of 30 days?
2. There are 38 players in each school band. Five school bands marched in a parade. How many players marched in the parade?
3. The music teacher taught 24 pupils last year. Each pupil learned 8 different songs for the whole year. How many songs did all the pupils learn that year?

Are you done answering? If yes, time to check.

Please go to page 8 for the **Answer Key**.





## Answer Key

<p><b>What I Know</b></p> <ol style="list-style-type: none"> <li>42</li> <li>24</li> <li>60</li> <li>40</li> <li>72</li> <li>42</li> <li>46</li> <li>154</li> <li>198</li> <li>156</li> </ol>	<p><b>What's In</b></p> <ol style="list-style-type: none"> <li>192</li> <li>26</li> <li>147</li> <li>96</li> <li>60</li> <li>115</li> <li>130</li> <li>99</li> <li>120</li> <li>10, 75</li> </ol>	<p><b>What's More</b></p> <ol style="list-style-type: none"> <li>180</li> <li>143</li> <li>182</li> <li>168</li> <li>110</li> </ol>
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<p><b>What I Can Do</b></p> <ol style="list-style-type: none"> <li>182</li> <li>170</li> <li>140</li> <li>192</li> <li>132</li> </ol>	<p><b>Assessment</b></p> <ol style="list-style-type: none"> <li>190</li> <li>198</li> <li>165</li> <li>168</li> <li>176</li> <li>150</li> <li>68</li> <li>96</li> <li>90</li> <li>161</li> </ol>	<p><b>Additional Activities</b></p> <ol style="list-style-type: none"> <li>150 dresses</li> <li>190 players</li> <li>192 songs</li> </ol>
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## ***References***

K to 12 Mathematics Curriculum Guide, August 2016.

Tabilang, Alma R. et. Al, 2015, Mathematics 4 Teacher's Guide  
pp. 47-52, Department of Education

Tabilang, Alma R. et. Al, 2015, Mathematics 4 Learner's Material  
pp. 36-39, Department of Education

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