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DEPARTMENT OF EDUCATION

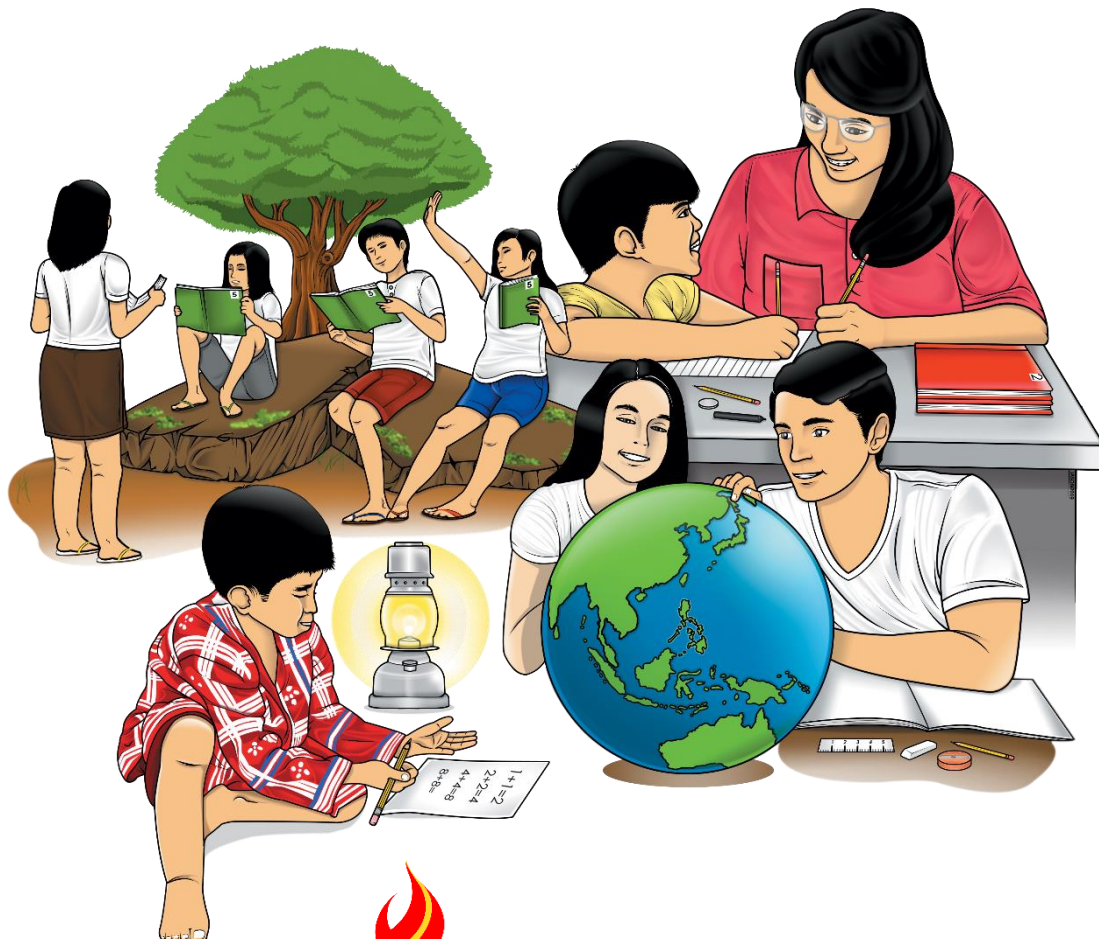# Mathematics

Quarter 2 – Module 9:
Estimating the Products of Decimal Numbers with Reasonable Results

ALTERNATIVE DELIVERY MODE
ADM

Mathematics – Grade 5
Alternative Delivery Mode
Quarter 2 – Module 9: Estimating the Products of Decimal Numbers with Reasonable Results
First Edition, 2020

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Mathematics

Quarter 2 – Module 9: Estimating the Products of Decimal Numbers with Reasonable Results

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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.

Good luck and happy learning!

What I Need to Know

Hello, mathletes! In this module, you are going to gain an understanding on estimating products and decimal numbers with reasonable results. Remember that estimation is a useful skill that provides a quick and easy answer when an exact answer is not necessary. It also allows you to check the reasonableness of your answer.

After going through this module, you are expected to estimate the products of decimal numbers with reasonable results.

What I Know

Directions: Choose the letter of the correct answer and write it on a separate sheet of paper.

1) What do you call a process to find a quick and easy answer to a problem when an exact answer is not necessary?
   A. Assumption
   B. Estimation
   C. Prediction
   D. Solution

2) Round 85.95 to the nearest tens.
   A. 80
   B. 85
   C. 86
   D. 90

3) Round 229 to the nearest hundreds.
   A. 200
   B. 220
   C. 230
   D. 300

4) What is the estimated of he product of 5.3 and 8.9?
   A. 55
   B. 50
   C. 45
   D. 40

5) What is the estimated product of 12.8 and 10?
   A. 120
   B. 130
   C. 140
   D. 150

6) Estimate the product of 4.8 and 7.
    A. 25   C. 35
    B. 30   D. 40

7) What is the estimated product of 6.75 and 8.56?
    A. 57   C. 63
    B. 60   D. 70

8) Use compatible numbers to estimate 29.78 x 4.83.
    A. 116   C. 145
    B. 120   D. 150

9) Estimate the product of 5.01 x 11.6 using rounding it off.
    A. 55   C. 65
    B. 60   D. 70

10) Round the estimated product of 7.5 x 2.4.
    A. 12   C. 16
    B. 14   D. 18

 What's In

Knowing how to round off can help you estimate with money. Let us review how to round off a decimal to any place-value.

In rounding off decimal, look at the digit to the right of the place being rounded. The digit being rounded remains the same if the digit to the right is 0, 1, 2, 3, 4. Round up if the digit to the right is 5, 6, 7, 8 or 9.

Activity 1: Round Me Off

Directions: Round-off the following decimal numbers into the whole number.

Decimal Numbers	Whole Numbers
1) 5.37	
2) 35.53	
3) 94.69	
4) 105.49	
5) 46.3	

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What's New

Let us read and analyze the situation below.

> Mrs. Reyes asked Danny to estimate the product of 14.8 and 6.3, but Danny refused to perform the task because he didn't know how to do it. If Mrs. Reyes will ask you to help Danny by explaining to him the rules in estimating products of decimals, will you do it? Can you help Danny? Do you know the rules?
>
> Find out how Danny will do the task that Mrs. Reyes asked him to do. Help him study the steps on how it is done.

What Is It

In estimating products of decimals, round each decimal to the nearest whole number before multiplying.

Let us discuss the situation given and carefully study how it is done.

Estimate the product of 14.8 x 6.3.

1) Round off each decimal to the nearest whole number before multiplying.

$$14.8 \longrightarrow 15$$
$$\underline{X\ 6.3} \longrightarrow \underline{\ \ 6}$$
$$\longrightarrow 90$$

Here it is:

14.8 -when rounded off to the nearest whole number, becomes 15 and

6.3 -when rounded off to the nearest whole number becomes 6.

Then multiply the two estimated numbers 15 and 6, to get product of 9.

Here are other examples in estimating products.

Example 1: Estimated the product of 14.6 x 2.3.

Solution: 14.6 x 2.3 ➡ 15 x 2 ➡ 30

The estimated product of 14.6 and 2.3 is 30.

Example 2: Find the estimated product of 12.23 x 3.3.

Solution: 12.23 x 3.3 ➡ 12 x 3 ➡ 36

The estimated product of 12.23 x 3.3 is 36.

Example 3: Estimate by rounding off 44.8 x 38.9.

Solution: 44.8 x 38.9 ➡ 45 x 39 ➡ 1, 755.

The product of 44.8 x 38.9 is about 1, 756.

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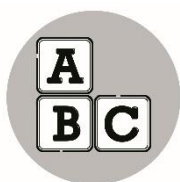
 What's More

Activity 2: Complete Me

Directions: Complete the table by rounding off the factors and giving the estimated products. Number 1 is done as your guide.

	Rounded Factors	Estimated Product
1) 12.23 x 3.3	12 x 3	36
2) 7.7 x 8.18		
3) 68.54 x 24.4		
4) 632.7 x 7.89		
5. 48.9 x 6.43		
5) 76.45 x 44.2		
6) 20.20 x 19.8		
7) 5.8 x 7.2		
8) 101 x 98		
9) 12.345 x 6.23		
10) 999 x 9		

Activity 3: Don't Overestimate or Underestimate Me

Directions: Tell whether the given estimate is an overestimate or an underestimate.

1. A cup of *tahó* costs P9.50. Princess estimates that she would have to pay P100.00 for 9 cups of *tahó.*
2. A small notebook costs P8.65. Faith estimated that she would have to pay P56.00 for 7 notebooks.
3. A powder detergent costs P6.25 per pack. Madel estimates that she would have to pay P30.00 for 4 packs of powder detergent.

Do you know the term overestimate? Or underestimate? When to use overestimate and underestimate?

- It is overestimate if the computation is more than the actual product and;
- It is underestimate if the computation is less than the actual product.

What I Have Learned

Estimation is used to give a quick and easy answer to a problem when an exact answer is not necessary. It may be used to check the reasonableness of an answer. To estimate the product of decimals, round off each factor or decimal to the nearest whole number then multiply the rounded factors.

Let us do the game below, identify the correct estimated product. Use a separate sheet of paper.

1) 2.1 x 3.4 = 6 or 8?   4) 4.3 x 3.9 = 12 or 16?
2) 5.3 x 10.51 = 50 or55?
3) 70.2 x 20.3 = 140 or 1400   5) 8.4 x 5.01 = 40 or 45?

What I Can Do

Activity 4: Let's Go to Work

Directions: Solve the following word problem. Estimate the answer.

1. Crystal bought a dozen *baluts* at P14.50 each. About how much did she spend for the *baluts*?
2. Lea bought 9 concert tickets for the family. She spent P148 for each concert ticket. About how much did she spend in all for the concert tickets?
3. Richard jogs 2.67 km every day. About how many kilometers does he jog in two weeks?

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Assessment

Directions: Estimate each product by using rounded factors. Decide whether your estimation is an overestimate or an underestimate. Use a separate paper for this activity.

	Rounded Factors	Estimated Factors	Underestimate / or Overestimate
1) 19.5 x 68			
2) 6.3 x 32			
3) 75.7 x 42			
4) 493 x 7.6			
5) 1 345 x 1.8			
6) 2.72 x 34.8			
7) 183 x 4.9			
8) 1230 x 8.7			
9) 357 x 21.6			
10) 320 x 38.7			

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Additional Activities

Making a Budget Plan.

Make a shopping list for your school supplies. Make a budget plan of what you need. As part of your budget plan, imagine that either you underestimate or overestimate the total amount to pay to the grocery/store clerk.

Answer Key

Assessment

	Rounded Factors	Estimated Factors	Underestimate / or Overestimate
1) 19.5 x 68	20 x 68	1,360	Overestimate
2) 6.3 x 32	9 x 32	192	Underestimate
3) 75.7 x 42	76 x 42	3,192	Overestimate
4) 493 x 7.6	490 x 8	3,920	Overestimate
5) 1 345 x 1.8	1300 x 2	2,600	Underestimate
6) 2.72 x 34.8	3 x 35	105	Overestimate
7) 183 x 4.9	180 x 5	900	Overestimate
8) 1230 x 8.7	1200 x 9	10,800	Overestimate
9) 357 x 21.6	360 x 22	7,920	Overestimate
10) 320 x 38.7	320 x 39	12,480	Overestimate

What's More

Activity 2: Complete Me

	Rounded Factors	Estimated Product
1. 12.23 x 3.3	12 x 3	36
2. 7.7 x 8.18	8 x 8	64
3. 68.54 x 24.4	69 x 24	1,656
4. 632.7 x 7.89	630 x 8	5,040
5. 48.9 x 6.43	50 x 6	300
5. 76.45 x 44.2	76 x 44	3,344
6. 20.20 x 19.8	20 x 20	400
7. 5.8 x 7.2	6 x 7	42
8. 101 x 98	100 x 100	10,000
9. 12.345 x 6.23	6 x 12	72
10. 999 x 9	1000 x 10	10,000

What's More

Activity 3: Don't Overestimate or Underestimate Me

1. overestimate
2. underestimate
3. overestimate

What I Can Do

Activity 4: Let's Go To Work

1. P180
2. P1500
3. 42 km

What's In

Activity 1: Round Me Off

1. 5
2. 36
3. 95
4. 106
5. 46

What I Know

1. B
2. C
3. A
4. C
5. B
6. C
7. C
8. D
9. B
10. C

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References

Department of Education. n.d. *Mathematics 5: Teacher's Guide.* Philippines: Department of Education.

Ursua, A.C. and Lumbre, A.P. (2016). *21st Century MATHletes Textbook*, Quezon City: Vibal Group Inc.

Villamayor, A. C., Celeridad-Wright, A.D. and De Joya, E. (2017). *Math for Life Work text in Mathematics*, Quezon City: Rex Book Store Inc.

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