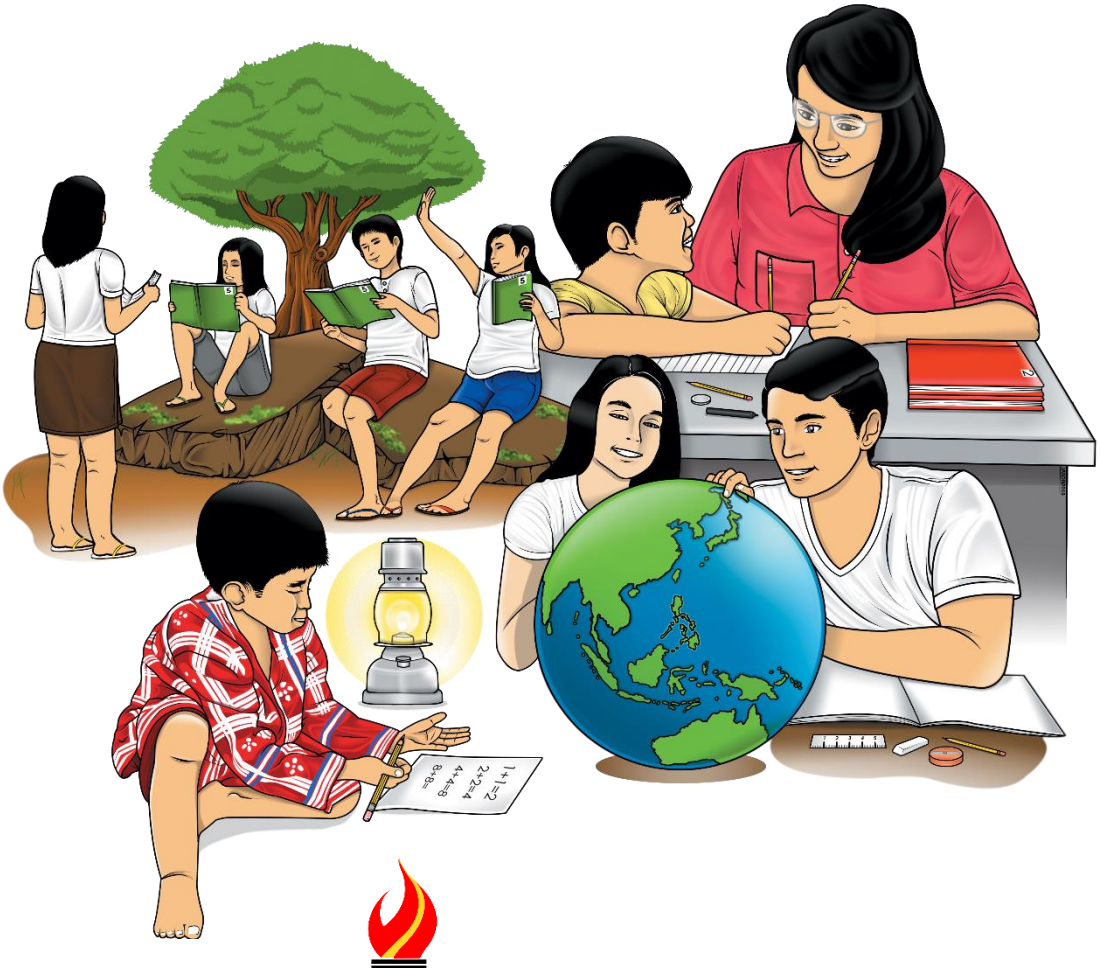
6

DepED
DEPARTMENT OF EDUCATION

Mathematics

Quarter 1 – Module 8:
Dividing Whole Numbers By Decimals



ALTERNATIVE DELIVERY MODE
ADM

Mathematics – Grade 6
Alternative Delivery Mode
Quarter 1 – Module 8: Dividing Whole Numbers By Decimals
First Edition, 2020

Published by the Department of Education
Secretary: Leonor Magtolis Briones
Undersecretary: Diosdado M. San Antonio

Development Team of the Module

Author: Marina B. Damasco

Editors: Rebecca O. Billones, Ma. Portia G. Galanto, and Collin G. Sales

Reviewers: Elleda E. De la Cruz, Rosemarie D. Aclan, and Collin G. Sales

Illustrator: Marina B. Damasco

Layout Artist: Felizardo S. Valdez III

Management Team: Ramir B.Uytico
Pedro T. Escobarte, Jr.
Elena P. Gonzaga
Donald T. Genine
Ma. Roselyn J. Palcat
Nordy D. Siason, Jr.
Rowena S. Carillo
Rosemarie D. Aclan
Arthur J. Cotimo
Felizardo S. Valdez III
Marve E. Gelera

Printed in the Philippines by _____

Department of Education – Region VI

Office Address: Duran Street, Iloilo City

Telefax: (033)336-2816, (033)509-7653
E-mail Address: region6@deped.gov.ph

6

Mathematics

Quarter 1 – Module 8: Dividing Whole Numbers By Decimals

DepED
DEPARTMENT OF EDUCATION

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 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

This module was designed and written with you in mind. It is here to help you master the skills in dividing decimals. The scope of this module allows you to use it in many different learning situations. The language used recognizes your diverse vocabulary level. The lessons are arranged to follow the standard sequence of your course. But the order in which you read them can be changed to match with the textbook you are now using.

The module is divided into three lessons, namely:

- Lesson 1 – Dividing Whole Numbers by Decimals Up to 1 Decimal Place
- Lesson 2 – Dividing 1 Decimal Place by Whole Numbers
- Lesson 3 – Dividing Whole Numbers by Decimals Up to 2 Decimal Places

After going through this module, you are expected to:

1. divide whole numbers by decimals up to 1 decimal place; **(M6NS-Ig-116.3)**
2. divide 1 decimal place by whole numbers; **(M6NS-Ig-116.3)**
3. divide whole numbers by decimals up to 2 decimal places; **(M6NS-Ig-116.3)** and
4. solve routine and non-routine problems involving division of whole numbers by decimals up to 2 decimal places including money using appropriate problem-solving strategies and tools. **(M6NS-Ii-120.2)**

What I Know

Find the quotient. Write your answer on your answer sheet.

1.) 28 ÷ 0.4 = ☐

2.) 648 ÷ 0.8 = ☐

3.) 13 ÷ 0.5 = ☐

4.) 24 ÷ 0.8 = ☐

5.) 810 ÷ 0.9 = ☐

6.) 816 ÷ 0.3 = ☐

7.) 56 ÷ 0.7 = ☐

8.) 4 550 ÷ 0.5 = ☐

9.) 2 781 ÷ 0.9 = ☐

10.) 546 ÷ 0.6 = ☐

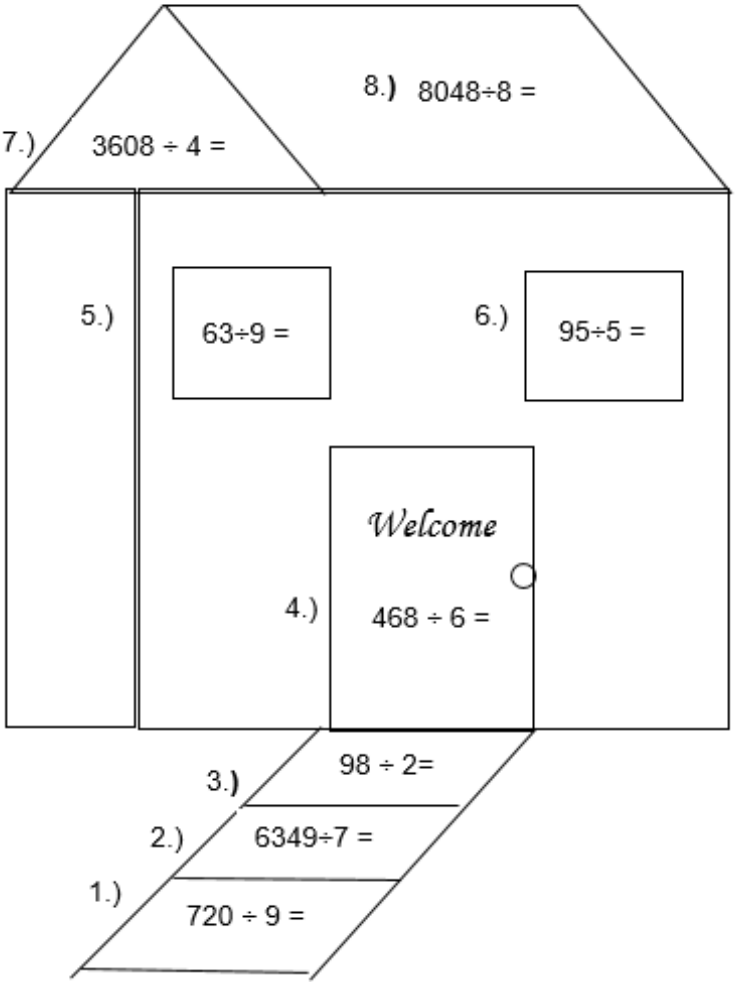
Lesson 1 Dividing Whole Numbers by Decimals Up to 1 Decimal Place

How did you find your journey on multiplying decimals? Was it an exciting experience? This time, you will continue your trip, a trip where you will enjoy exploring with the next operation that is division of decimals.

What's In

PLEASE COME IN

Answer each division equation in order for you to enter the house. Do your solutions on your answer sheet.



What's New

Read the problem below.

Aling Irma sews pillowcases. She uses 0.7 meter of cotton cloth for every pillowcase she makes. How many pillowcases can she make out of 21 m of cotton cloth?

What is It

Study the following:

Step 1: Multiply the divisor by a power of 10 or simply move the decimal point to the right to make it a whole number.

divisor → $0.7\overline{)21}$ ← dividend

Step 2: Do the same with the dividend. Place the decimal point directly above the decimal point of the dividend.

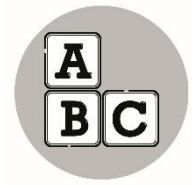
$$7\overline{)210.}$$

Step 3: Divide just like dividing whole numbers.

$$\begin{array}{r} 30. \\ 7\overline{)210} \\ \underline{21} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

← quotient

Based on the solution, Aling Irma can make 30 pillowcases out of 21 meters of cotton cloth.



What's More

I'll provide you with another example before you start your task. Study it carefully.
Question: How many 0.5 are there in 915?

This is how you go about it… 915 ÷ 0.5 =?

$$0.5\overline{)\,9150}\quad 1830$$
$$-5$$
$$41$$
$$-40$$
$$15$$
$$-15$$
$$0$$
$$0$$
$$0$$

Now, it's your turn to solve.

Find the quotient. Write your solution on your answer sheet.

1.) $0.4\overline{)\,128}$

2.) $0.7\overline{)\,294}$

3.) $0.9\overline{)\,3627}$

4.) $0.6\overline{)\,516}$

5.) $0.8\overline{)\,9128}$

What I Have Learned

- **In dividing whole numbers by decimals up to 1 decimal place:**
  1. *multiply the divisor by a power of 10 or simply move the decimal point to the right to make it a whole number;*
  2. *do the same with the dividend. Place the decimal point directly above the decimal point of the dividend; and*
  3. *divide just like dividing whole numbers.*

What I Can Do

A. Complete the table by dividing. Do it on your answer sheet.

No.	Dividend	Divisor	Quotient
1	9 018	0.9	
2	497	0.7	
3	620	0.5	
4	5 624	0.8	
5	1 266	0.6	

B. Solve the following problems on your answer sheet. Label your answers.

6.) A string measures 27 meters. How many pieces of 0.9 meter string can Virgilio make from it?

7.) Marilou bought 12 kilograms of tomatoes in the market. She packed these tomatoes into plastic bags of 0.5 kilogram per pack. How many packs can she make?

Assessment

Find the quotient. Write your answers on your answer sheet.

1.) $0.5\overline{)475}$

2.) $0.7\overline{)49}$

3.) $0.3\overline{)42}$

4.) $0.6\overline{)54}$

5.) $0.8\overline{)6488}$

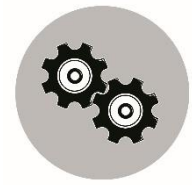
6.) $0.3\overline{)4536}$

7.) $0.7\overline{)84}$

8.) $0.5\overline{)9425}$

9.) $0.8\overline{)7256}$

10.) $0.9\overline{)450}$



Additional Activities

A. Divide the following. Write your answers on your answer sheet.

1.) 415 ÷ 0.5 = ☐

2.) 7804 ÷ 0.2 = ☐

3.) 189 ÷ 0.9 = ☐

4.) 6 054 ÷ 0.6 = ☐

5.) 6 314 ÷ 0.7 = ☐

B. Solve the following problems on your answer sheet. Label your answers.

6.) A roll of ribbon is 120-meter long. If it will be cut equally into pieces of 0.8 meter, how many pieces will be made?

7.) Mr. Dormis drove 63 kilometers in one hour. How many 0.3-kilometer distance did he drive in an hour?

8.) On a camping, the boy scouts were requested to bring bamboo poles. Troop Masigasig brought a pole measuring 8 meters. If they will divide it equally into pieces of 0.2 meter, how many pieces will they get?

9.) A private plane travels 28 miles per hour. How many 0.4 mile does it travel with the said speed?

10.) A drum contains 324 liters of liquid fertilizer. Mang Kanor wanted to divide it into smaller containers containing 0.6 liter each. How many containers does he need?

Answer Key

What I Know

1. 70
2. 810
3. 26
4. 30
5. 900
6. 2 720
7. 80
8. 9 100
9. 3 090
10. 910

What's In

1. 80
2. 907
3. 49
4. 78
5. 7
6. 19
7. 902
8. 1 006

What's More

1. 320
2. 420
3. 4 030
4. 860
5. 11 410

What Can I Do

A.

1. 10 020
2. 710
3. 1 240
4. 7 030
5. 2 110

B.

6. 30 pieces of 0.9-meter string
7. 24 packs of tomatoes

Assessment

1. 950
2. 70
3. 140
4. 90
5. 8 110
6. 15 120
7. 120
8. 18 850
9. 9 070
10. 500

Additional Activities

A.

1. 830
2. 39 020
3. 210
4. 10 090
5. 9 020

B.

6. 150 pieces of ribbons
7. 210 – 0.3 km distance
8. 40 pieces of bamboos
9. 70 – 0.4 mile were travelled in one hour
10. 540 containers

What I Know

Find the quotient. Write your solution on your answer sheet.

1.) $4\overline{)0.8}$

2.) $6\overline{)0.3}$

3.) $25\overline{)0.5}$

4.) $12\overline{)0.6}$

5.) $35\overline{)0.7}$

6.) $2\overline{)0.6}$

7.) $45\overline{)0.9}$

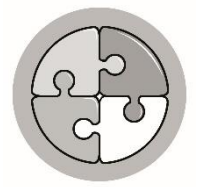
8.) $40\overline{)0.4}$

9.) $5\overline{)0.4}$

10.) $25\overline{)0.6}$

Lesson 2 Dividing 1 Decimal Place by Whole Numbers

You already have the first grasp of the lesson on division involving decimals which is dividing whole numbers by decimals. Moving on to the next level will be more challenging. Now, you will be dividing 1 decimal place by whole numbers.

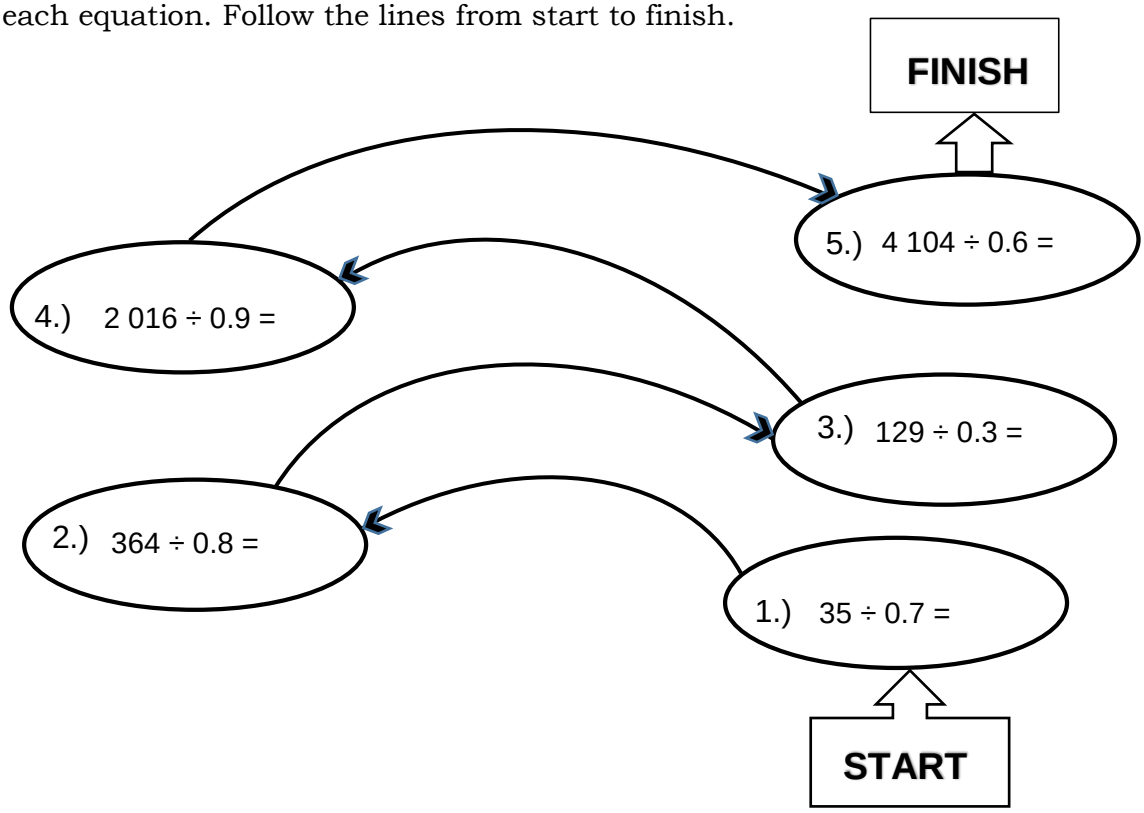


What's In

Try to have a good start by completing the activity below.

DECIMAL MAZE

Solve each equation. Follow the lines from start to finish.



What's New

Are you spending your time wisely?

Try to read and analyze the problem below.

Sandra has 0.8 of an hour to spend for two activities: reviewing her English lessons and making her Math assignment. How much time will be spent for each activity?

What is It

Now, let us solve the problem step by step.

Step 1: Write the equation.

divisor → 2 ⟌ 0.8 ← dividend

Step 2: Write the decimal point directly on top of the decimal point of the multiplicand.

```
    .  ← decimal point
2 ⟌ 0.8
```

Step 3: Divide just like dividing whole numbers.

```
    .4  ← quotient
2 ⟌ 0.8
   - 8
    0
```

Therefore, Sandra will be spending 0.4 hour for each activity.

What's More

I'll show you another example on how to divide 1 decimal place by a whole number. Analyze it carefully.

Given: 0.7 ÷ 5 =?

$$
\begin{array}{r}
.14 \\
5\overline{)\,0.70} \\
-\,5 \\
\hline
20 \\
20 \\
\hline
0
\end{array}
$$

Solve each of the following equation. Write your solutions on your answer sheet.

1.) $30\overline{)0.9}$

2.) 0.2 ÷ 4 =

3.) 0.8 ÷ 5 =

4.) 0.6 ÷ 30 =

5.) $15\overline{)0.3}$

What I Have Learned

Remember:

- ***To divide one decimal place by whole numbers, simply:***
  1. align the decimal point directly on top of the decimal point in the dividend. You may add zeroes, if needed; and
  2. divide as in dividing whole numbers.

What I Can Do

A. Find the quotient. Write your solution on your answer sheet.

1.) 0.6 ÷ 12 = ☐

2.) 0.5 ÷ 25 = ☐

3.) 0.9 ÷ 15 = ☐

4.) 0.7 ÷ 20 = ☐

5.) 0.8 ÷ 16 = ☐

B. Read, analyze, and solve. Label your answers.

6.) If 0.5 meter will be divided by 40, what is the quotient?

7.) Lanie has 0.6 of an hour in doing 3 household chores: sweeping the yard, washing the dishes, and doing the laundry. How much time will be spent for each task?

Assessment

Divide each given equation correctly. Write your answers on your answer sheet.

1.) $40\overline{)0.8}$

2.) $24\overline{)0.6}$

3.) $5\overline{)0.3}$

4.) $50\overline{)0.8}$

5.) $10\overline{)0.5}$

6.) $20\overline{)0.9}$

7.) $30\overline{)0.6}$

8.) $35\overline{)0.7}$

9.) $5\overline{)0.1}$

10.) $5\overline{)0.9}$

Additional Activities

A. Find the quotient. Write your answers on your answer sheet.

1.) 0.3 ÷ 15 = ☐

2.) 0.9 ÷ 18 = ☐

3.) 0.6 ÷ 24 = ☐

4.) 0.2 ÷ 16 = ☐

5.) 0.7 ÷ 28 = ☐

B. Read, solve, and label your answer. Write your solutions on your answer sheet.

6.) The children had 0.5 mango pizza left for snacks. If this will be sliced equally into 5, how big is one slice?

7.) Mang Andres owns 0.8 hectare of land. He plans to divide it among his 4 children. What part of his land will each child get?

8.) Renela has 0.6 liter of disinfectant liquid to be used in preparing solution for three footbaths of the same size. How much disinfectant liquid will be used in each footbath?

9.) Mother bought 0.4 kilogram of grapes for her 2 kids? How many kilogram of grapes will each kid receive?

10.) Shanie is a private tutor. She has 0.9 of the day to spend for her three tutees. What part of the day will be spent for each tutee?

Answer Key

What I Know	What's More	Assessment
1. 0.2 2. 0.05 3. 0.02 4. 0.05 5. 0.02 6. 0.3 7. 0.02 8. 0.01 9. 0.08 10. 0.024 **What's In** 1. 50 2. 455 3. 430 4. 2 240 5. 6 840	1. 0.03 2. 0.05 3. 0.16 4. 0.02 5. 0.02 **What I Can Do** A. 1. 0.05 2. 0.02 3. 0.06 4. 0.035 5. 0.05 B. 6. 0.0125 meter 7. 0.2 hour – will be spent for each task	**Assessment** 1. 0.02 2. 0.025 3. 0.06 4. 0.016 5. 0.05 6. 0.045 7. 0.02 8. 0.02 9. 0.02 10. 0.18 **Additional Activities** A. 1. 0.02 2. 0.05 3. 0.025 4. 0.0125 5. 0.025 B. 6. 0.1 – part of 1 slice of mango pizza 7. 0.2 hectare – part of land each child get 8. 0.2 liter – cooking oil to be used to fry each fish 9. 0.2 kilogram –grapes each kid will receive 10. 0.3 part of the day to be spent for each tutee

What I Know

A. Find the quotient. Write your answers on your answer sheet.

1.) $0.07\overline{)35}$.

2.) $0.13\overline{)39}$

3.) $0.60\overline{)540}$

4.) $0.44\overline{)88}$

5.) $0.03\overline{)306}$

B. Divide the following decimals. Write your answers on your answer sheet.

6.) 45 ÷ 0.09 = ☐

7.) 644 ÷ 0.04 = ☐

8.) 510 ÷ 0.17 = ☐

9.) 140 ÷ 0.35 = ☐

10.) 196 ÷ 0.28 = ☐

Lesson 3 Dividing Whole Numbers by Decimals Up to 2 Decimal Places

How do you feel now after taking two lessons? Still feeling great, I guess. It's really admirable to note that you are at ease with the previous challenges and still eager to climb up the higher level.

What's In

Divide the given decimals. Choose the letter of the correct answer and write it on your answer sheet.

_____ 1.) 0.9 ÷ 3 =

A. 0.3 B. 0.03 C. 0.003 D. 0.0003

_____ 2.) 0.8 ÷ 16 =

A. 0.0005 B. 0.005 C. 0.05 D. 0.5

_____ 3,) 0.8 ÷ 25 =

A. 0.031 B. 0.032 C. 0.033 D. 0.034

_____ 4.) 0.6 ÷ 15 =

A. 0.01 B. 0.02 C. 0.03 D. 0.04

_____ 5.) 0.7 ÷ 35 =

A. 2 B. 0.2 C. 0.02 D. 0.002

What's New

Study and analyze the problem below.

Mrs. Gomez received a box of canned goods weighing 112 kilograms. She plans to place these into smaller boxes weighing 0.16 kilogram each. How many boxes does she need?

What is It

To find out the number of boxes needed, do the following steps:

Step 1: Write the equation based on the problem.

divisor ⟹ $0.16\overline{)\ 112}$ ⟸ **dividend**

Step 2: Multiply the divisor by a power of 10 or simply move the decimal point to the right. (0.16 now becomes 16)

$0.16\overline{)\ 112}$

Step 3: Do the same with the dividend. Since the dividend is a whole number, you will add two zeroes. (112 now becomes 11 200)

$0.16\overline{)\ 112.00}$

Step 4: Divide as in dividing whole numbers.

$$
\begin{array}{r}
700 \\
016\overline{)\ 11200} \\
\underline{112} \\
0 \\
\underline{0} \\
0 \\
\underline{0} \\
0
\end{array}
$$

700 ⟸ quotient

So, Mrs. Gomez needs 700 small boxes to materialize her plan.

For you to further learn the skill of dividing whole numbers by decimals up to 2 decimal places, study the problem below.

Rose bought four rulers and some markers that cost ₱154.50. If one ruler costs ₱11.25 while one marker costs P36.50, how many markers did she buy?

Understand:

1. What is asked?

   Answer: The number of markers Rose bought

2. What facts are given?

   Answer: ₱154.50 – total cost of four rulers and some markers

   ₱11.25 – cost of one ruler

   ₱36.50 – cost of one marker

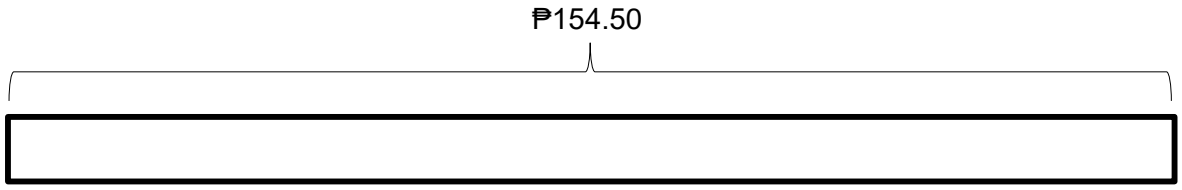
Plan: What operations will you use to solve the problem? Decide for a strategy.

Strategy: The Block Model Strategy will help you solve this problem.

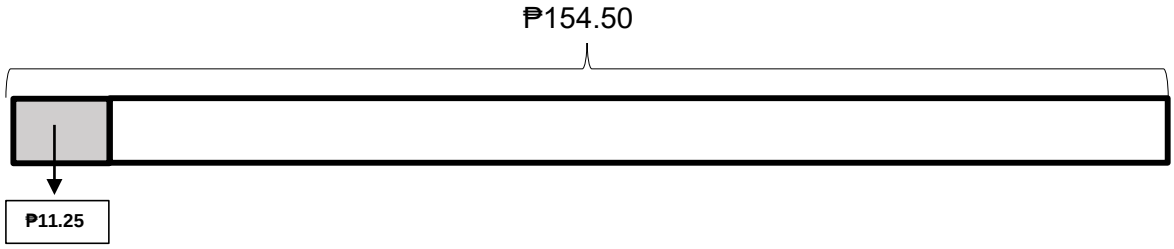
Solve: Show your solution.

Applying the strategy:

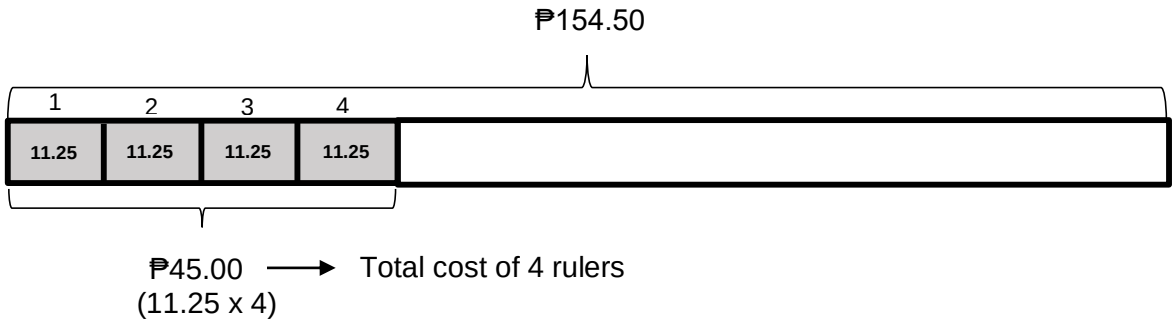
Step 1: Draw a block model to represent the total cost of the rulers and markers.



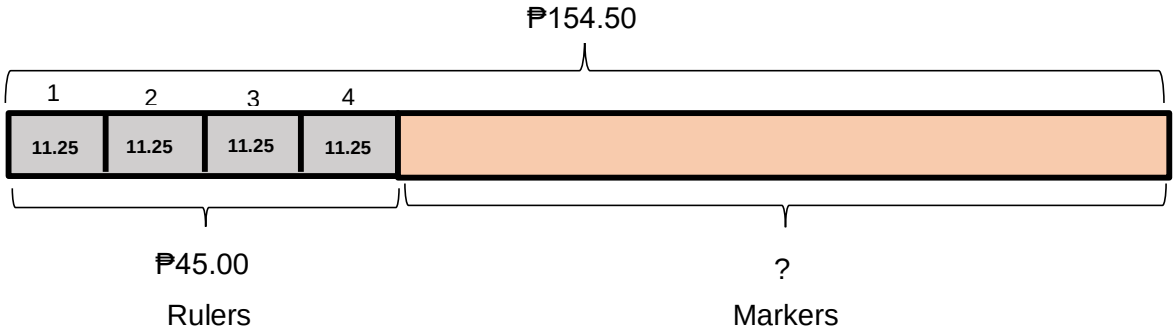
Step 2: Cut a portion to represent the price of 1 ruler.



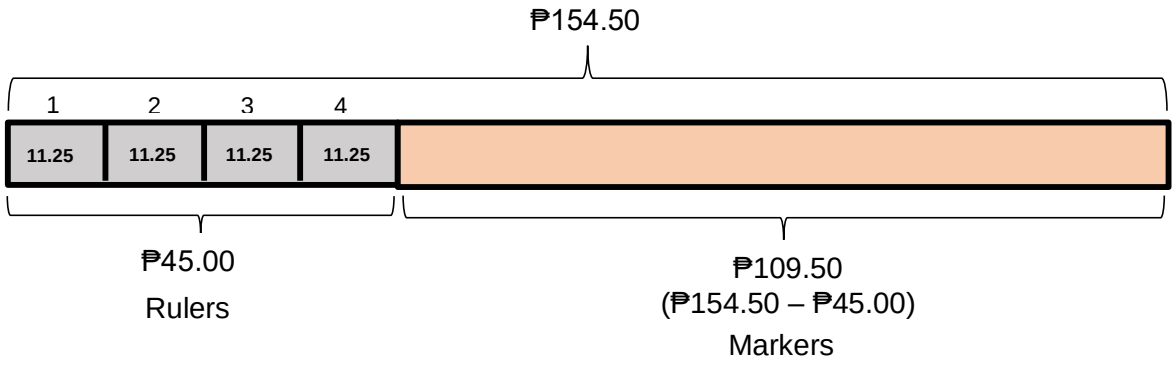
Step 3: Cut portions representing the price of all the 4 rulers. (₱11.25 x 4 = ₱45.00)



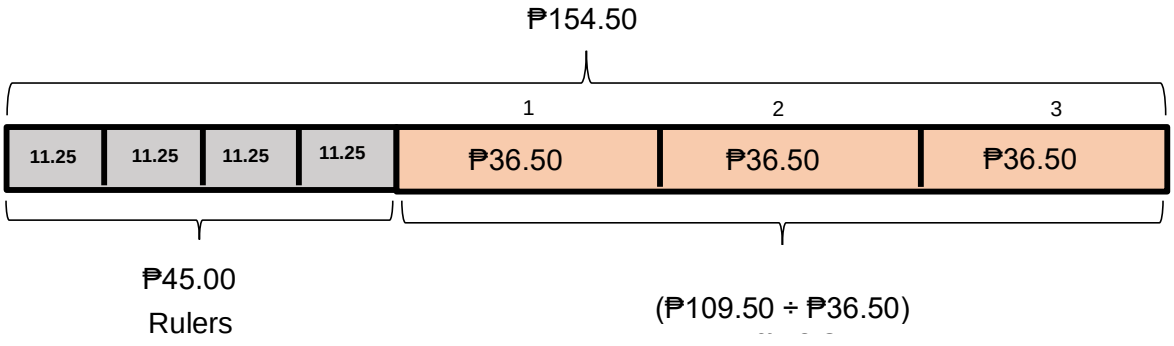
Step 4: The remaining part of the block model represents the cost of the markers.



Step 5: Subtract the total cost of the rulers from the total cost of the rulers and markers.



Step 6: Divide ₱109.50 by ₱36.50 which is the unit price of one marker to get the number of markers Rose bought.



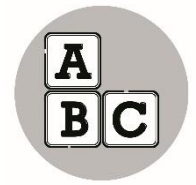
So, Rose bought three markers.

Check: To check the answer, multiply the cost of one ruler which is ₱11.25 to 4. Multiply also the cost of one marker which is ₱36.50 to 3. Then, add the total cost of the rulers and total cost of the markers. If it is equal to ₱154.50, thus, your answer is correct.

₱11.25 x 4 = ₱45.00 ⟶ total cost of 4 rulers

₱36.50 x 3 = ₱109.50 ⟶ total cost of 3 markers

₱45.00 + ₱109.50 = ₱154.50 ⟶ total cost of 4 rulers and 3 markers



What's More

I'll give you another example to serve as your guide before answering the next exercise.

Given: 105 ÷ 0.35 = N

Solution:

$$0.35\overline{)105.00}$$

Make both the divisor and dividend whole numbers by moving the decimal point two places to the right.

$$35\overline{)10500}\quad 300$$

Divide just as dividing whole numbers.

-105

0

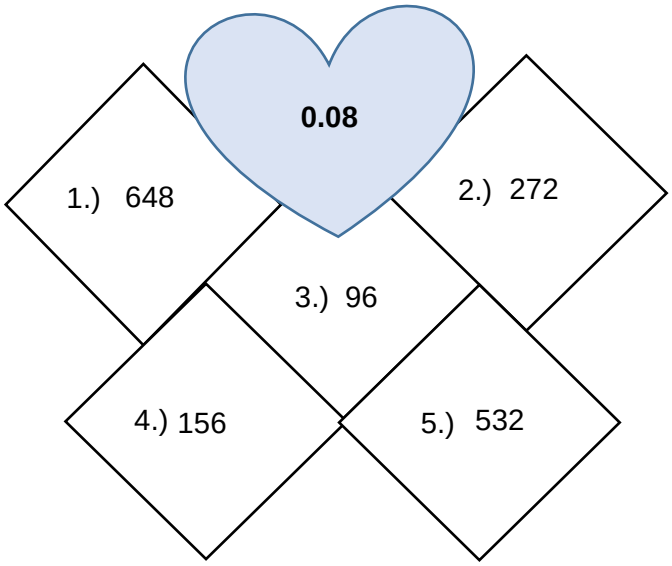
0

0

0

0

A. Divide the whole numbers inside the rhombuses by the decimal number inside the heart. Write your solution on your answer sheet.



B. Read and solve. Use the appropriate strategy. Show your solution on your answer sheet.

Two raincoats and four umbrellas cost ₱861.50. If one umbrella costs ₱90.25, how much does one raincoat cost?

What I Have Learned

How do you divide whole numbers by decimals up to 2 places?

- **To divide whole numbers by decimals up to 2 decimal places:**
  1. multiply the divisor with a power of ten or move the decimal point to the right to make it a whole number;
  2. move also the decimal places in the dividend as many places you move in the divisor. Add zeroes as placeholders, if needed; and
  3. divide as in dividing whole numbers.

What I Can Do

A. Find the value of N. Write your solutions in your answer sheet.

1.) 48 ÷ 0.06 = N

2.) 72 ÷ 0.24 = N

3.) 200 ÷ 0.08 = N

4.) 63 ÷ 0.07 = N

5.) 165 ÷ 0.11 = N

B. Read, analyze, and solve. Label your answers.

6.) Twinkle received a ₱100-peso bill from her ninang. She went to the bank to exchange the amount for ₱0.25. How many pieces of 25 centavos will the teller give her?

7.) Dianne bought six blouses and five skirts at ₱1 066.00. If one blouse costs ₱105.25, how much is the cost of one skirt?

8.) What is halfway between 20 and 33.74?

Assessment

A. Solve the following division equations on your answer sheet.

1.) $0.23\overline{)69}$

2.) $0.21\overline{)84}$

3.) $0.08\overline{)720}$

4.) $0.03\overline{)654}$

5.) $0.09\overline{)108}$

6.) $0.18\overline{)540}$

7.) $0.12\overline{)132}$

8.) $0.40\overline{)240}$

9.) $0.17\overline{)85}$

10.) $0.33\overline{)165}$

B. Read and solve. Use the appropriate strategy. Show your solution on your answer sheet.

Rico went to a bookstore. He bought six pieces of Mathematics pocket dictionaries and eight pieces of English-Filipino dictionaries which cost ₱680.60. If one piece of Mathematics pocket dictionary costs ₱45.50, how much does one piece of English-Filipino dictionary cost?

Additional Activities

A. Find the quotient. Write your solutions on your answer sheet.

1.) 261 ÷ 0.03 = _____

2.) 72 ÷ 0.18 = _____

3.) 93 ÷ 0.03 = _____

4.) 819 ÷ 0.09 = _____

5.) 640 ÷ 0.16 = _____

B. Read, analyze, and solve. Write the solutions on your answer sheet.

6.) In a quiz bee, the contestants were asked to find out if how many ₱0.75 cents are there in ₱375. What will the answer be?

7.) The officials of Barangay Constancia plan to plant mango seedlings along the six-kilometer highway. The distance between two consecutive seedlings is 0.24 kilometer. How many mango seedlings do they need to plant from end to end of the highway?

8.) A box contains 15 kilograms of iodized salt. How many packs of 0.25-kilogram iodized salt can be made from it?

9.) Alice is a fruit vendor. In her fruit stand, 10 Indian mangoes and 15 guavas is sold at a total cost of ₱278.75. If one Indian mango costs ₱9.50, how much does one guava cost?

10.) What is three-fourths way between 12.65 and 15?

Answer Key

What I Know	What's More	Assessment
A. 1. 500 2. 300 3. 900 4. 200 5. 10 200 B. 6. 500 7. 16 100 8. 3 000 9. 400 10. 700 **What's In** 1. A 2. C 3. B 4. D 5. C	A. 1. 8 100 2. 3 400 3. 1 200 4. 1 950 5. 6 650 B. ₱250.25 – cost of one raincoat **What I Can Do** A. 1. 800 2. 300 3. 2 500 4. 900 5. 1 500 B. 6. 400 pieces of 25 centavos 7. ₱86.90 – cost of one skirt 8. 26.87 – halfway between 20 and 33.74	A. 1. 300 2. 400 3. 9 000 4. 21 800 5. 1 200 6. 3 000 7. 1 100 8. 600 9. 500 10. 500 B. ₱50.95 – cost of one piece of English-Filipino dictionary **Additional Activities** A. 1. 8 700 2. 400 3. 3 100 4. 9 100 5. 4 000 B. 6. 500 7. 26 mango seedlings 8. 60 packs 9. ₱12.25 – cost of one Guava 10. 14.4125 - ¾ way between 12.65 and 15

Reference:

- *Most Essential Learning Competencies (MELC) in Mathematics 6*

For inquiries or feedback, please write or call:

Department of Education - Bureau of Learning Resources (DepEd-BLR)

Ground Floor, Bonifacio Bldg., DepEd Complex
Meralco Avenue, Pasig City, Philippines 1600

Telefax: (632) 8634-1072; 8634-1054; 8631-4985

Email Address: blr.lrqad@deped.gov.ph * blr.lrpd@deped.gov.ph