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Mathematics

Quarter 1 - Module 4:
Operations on Rational Numbers

AIRs - LM

MATHEMATICS 7
Quarter 1 - Module 4: Operations on Rational Numbers
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MATHEMATICS

Quarter 1 - Module 4:
Operations on Rational Numbers

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 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.

Target

In the previous lesson, you learned how to perform operations on integers and express rational numbers from fraction form to decimal form and vice-versa. Thus, the different properties illustrated and applied will also be used into this module. Since, the next lesson is to perform operations on rational numbers. This module will help you to strengthen your understanding with rational numbers.

After going through this module, you are expected to:

Learning Competency:

- perform operations on rational numbers. **(M7NS-If-1)**

Learning Objectives:

1) Define and illustrate similar and dissimilar fractions.
2) Perform operations on rational numbers in fraction and decimal form.

Before we start the lesson, find out how much you already know about this module by answering the pre – assessment on the subsequent page.

PRE – ASSESSMENT

Directions: Read and answer each statement below carefully. Select the letter of the correct answer and write it in a separate sheet of paper.

1. What should be the least common denominator of $\frac{2}{9}$ and $\frac{5}{6}$ to make them similar terms?

   A. 6 B. 9 C. 12 D. 18

2. How are you going to write $\frac{27}{12}$ in mixed number to its lowest term?

   A. $2\frac{1}{12}$ B. $2\frac{1}{6}$ C. $2\frac{1}{4}$ D. $2\frac{1}{2}$

3. What is the simplified form of the expression $\frac{1}{3} + \frac{1}{4}$?

   A. $\frac{2}{7}$ B. $\frac{3}{7}$ C. $\frac{7}{12}$ D. $\frac{11}{12}$

4. What must be added to $\frac{1}{3}$ to obtain 2?

   A. $\frac{2}{3}$ B. $1\frac{1}{3}$ C. $1\frac{2}{3}$ D. $\frac{7}{3}$

5. What is the difference of $\frac{2}{3}$ and $\frac{1}{4}$?

   A. $\frac{5}{12}$ B. $\frac{4}{12}$ C. $\frac{3}{12}$ D. $\frac{2}{12}$

6. What is $2\frac{4}{5}$ in improper fraction?

   A. $\frac{40}{5}$ B. $\frac{24}{5}$ C. $\frac{14}{5}$ D. $\frac{8}{5}$

7. What is the simplified form of $\left(\frac{6}{5}\right)\left(2\frac{2}{3}\right) - \frac{6}{5} 2\frac{2}{3}$?

   A. $3\frac{4}{5}$ B. $3\frac{8}{15}$ C. $3\frac{1}{5}$ D. $3\frac{1}{15}$

8. Which of the following is the product of $\frac{2}{5}$ and $3\frac{1}{3}$

   A. $1\frac{1}{5}$ B. $1\frac{1}{4}$ C. $1\frac{1}{3}$ D. $1\frac{1}{2}$

9. How are you going to write the reciprocal of $\frac{4}{5}$?

   A. $\frac{1}{5}$ B. $\frac{1}{4}$ C. $\frac{4}{5}$ D. $\frac{5}{4}$

10. What is the quotient of 5 and $\frac{2}{5}$?

    A. $\frac{2}{25}$ B. 2 C. $5\frac{2}{5}$ D. $12\frac{1}{2}$

11. What is the quotient of $\frac{4}{7}$ and $\frac{5}{14}$

    A. 8 B. $4\frac{4}{5}$ C. $2\frac{4}{5}$ D. $1\frac{3}{5}$

12. What is the difference of 15.39 and 8.7?

    A. 6.41 B. 6.69 C. 7.49 D. 7.61

13. What is the product of 2.67 and 1.3?

    A. 0.3471 B. 3.471 C. 34.71 D. 347.1

14. What is the quotient of 7.8 and 1.3?

    A. 0.06 B. 0.6 C. 6 D. 60

15. Zsean made cookies, $\frac{4}{5}$ of the cookies was eaten by his brother Ali. Which of the decimal number is equivalent to the cookies left?

    A. 0.8 B. 0.6 C. 0.4 D. 0.2

Jumpstart

Lesson 1: Operations on Rational Numbers in Fraction Form

Previously, you learned the concepts of performing operations on integers and express rational numbers from fraction form to decimal form and vice-versa. Hence, let us recall the different important terms that will be needed in performing the operations on rational numbers.

Activity 1: Crossword Puzzle

Directions: Fill in the crossword puzzle with the word identified from the statement below. Match the number of the sentence to the boxes placed across or down the grid. If filled out correctly the words will fit neatly into the puzzle.
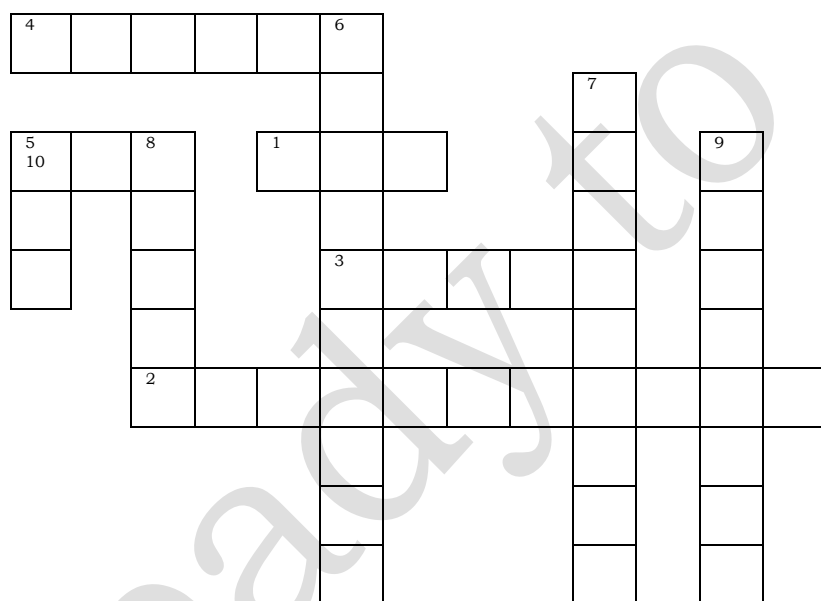
Choose the answer here:

GCF

LCD

LCM

Reciprocal

Numerator

Denominator

Prime (factor)

Proper (fraction)

Mixed (fractions)

Improper (fraction)

Cross

1. the greatest factor that divides two numbers
2. the number below the line in a common fraction
3. a number that has no other factors aside from itself and one
4. a fraction in which the numerator is less than the denominator
5. the smallest positive integer that is divisible by both numbers or more

Down

6. the inverse of a numerator and a denominator
7. the number above the line in a common fraction
8. fractions formed by combining a whole number and a fraction
9. a fraction in which the numerator is greater than the denominator
10. the lowest common multiple of the denominators of a set of fractions

Discover

Adding Rational Numbers in Fraction Form

Suppose $\frac{a}{c}$ and $\frac{b}{c}$ are two fractions with the same denominator, then:

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c} \ ; c \neq 0$$

These fractions are also called **similar fractions** because of the same denominators. Just add the numerators then copy the denominator.

Examples in adding similar fractions

1. $\frac{2}{7} + \frac{3}{7} = \frac{2+3}{7} = \mathbf{\frac{5}{7}}$

> **Simplify:** dividing by itself is always equal to 1

2. $\frac{3}{5} + \frac{2}{5} = \frac{3+2}{5} = \left(\frac{5}{5}\right) = \mathbf{1}$

> **Simplify:** Find the greatest common factor of 8 and 12, that is 4, divide the numerator and denominator by 4:
> $8 \div 4 = 2$, $12 \div 4 = 3$. Therefore, $\frac{8}{12} = \frac{2}{3}$.

3. $\frac{5}{12} + \frac{3}{12} = \frac{5+3}{12} = \left(\frac{8}{12}\right) = \mathbf{\frac{2}{3}}$

> **Simplify Improper Fraction:** numerator divided by the denominator

4. $\frac{8}{11} + \frac{5}{11} = \frac{3+2}{11} = \left(\frac{13}{11}\right) = \mathbf{1\frac{2}{11}}$

> **Simplify** improper fraction.

> **Simplify** to its lowest term using the greatest common factor

5. $\frac{11}{15} + \frac{7}{15} = \left(\frac{18}{15}\right) = 1\left(\frac{3}{15}\right) = \mathbf{1\frac{1}{5}}$

6. $2\frac{3}{8} + 5\frac{4}{8} = (2 + 5) \frac{3+4}{8} = \mathbf{7\frac{7}{8}}$

7. $4\frac{7}{10} + 2\frac{3}{10} = (4 + 2) \frac{7+3}{10} = \mathbf{6\frac{10}{10}} = \mathbf{7}$

> **Simplify:** $\frac{7}{5} = 1\frac{2}{5}$

8. $1\frac{4}{5} + 3\frac{3}{5} = (1 + 3) \frac{4+3}{5} = \mathbf{4\left(\frac{7}{5}\right)} = \mathbf{5\frac{2}{5}}$

Always remember to write your answer in simplified form or in its lowest term.

When the fractions have different denominators, these are called **dissimilar fractions**. Then, you have to:
1. Find the Least common Denominator **(LCD).**
2. Change the fractions to similar fractions.
3. Add numerators and write the sum over the common denominator.
4. Simplify the result, if possible, to lowest term or mixed number.

Examples in Adding Dissimilar Fractions

1. $\frac{2}{5} + \frac{1}{4} = \frac{8}{20} + \frac{5}{20} = \frac{8+5}{20} = \mathbf{\frac{13}{20}}$

Since, denominators 5 and 4 have no common factors, you can just simply multiply 5 and 4 for the LCD, 5 x 4 = 20. Next, divide 20 by 5, the answer which is 4 will be multiplied to 2, the numerator of the first fraction, the answer will be 8. Repeat the process to the second fraction, 20 ÷ 4 = 5, 5 x 1 = 5.

2. $\frac{4}{7} + \frac{2}{3} = \frac{12}{21} + \frac{14}{21} = \frac{12+14}{21} = \mathbf{\frac{26}{21}} = \mathbf{1\frac{5}{21}}$

LCD: 7 x 3 = 21

1st Fraction: 21 ÷ 7 = 3, 3 x 4 = **12**

2nd Fraction: 21 ÷ 3 = 7, 7 x 2 = **14**

3. $\frac{5}{8} + \frac{3}{4} = \frac{5}{8} + \frac{6}{8} = \frac{5+6}{8} = \mathbf{\frac{11}{8}} = \mathbf{1\frac{3}{8}}$

Since, the denominators have common factors, you have to find the LCD using the Skip Counting Method.

Solution:

1st denominator: since it is 8, you start with 8

⑧ 16, 24, 32, 40, …

2nd denominator: starts with 4

4 ⑧ 12, 16, 20, …

In this method, you can just list down 5 numbers then check if there is common multiple, if none yet, continue listing down until you can see the **least common multiple**. Least common multiple will serve as your Least Common Denominator **(LCD).** After you have found this, apply the process done in the previous examples.

4. $\frac{3}{8} + \frac{5}{12} = \frac{9}{24} + \frac{10}{24} = \frac{9+10}{24} = \mathbf{\frac{19}{24}}$

   Solution: Using Skip Counting Method

   1st denominator: ⑧ 16, 24, 32, 40, …
   2nd denominator: ⑫ 24, 36, 48, 60, …

5. $\frac{5}{6} + \frac{4}{9} = \frac{15}{18} + \frac{8}{18} = \frac{15+8}{18} = \mathbf{\frac{23}{18}} = \mathbf{1\frac{5}{18}}$

   Solution: Using Cake Method in finding the LCD

   3 | 6   9   divide 6 by 3, divide 9 by 3
       2   3   no common factor

   Then, multiply 3, 2 and 3. The product will serve as your **LCD**,

   3 x 2 x 3 = **18**.

   In this method, you just write down the denominators and **prime factors** like a layer of cake to find the least common denominator. Stop the process when there is no common factor for all the given denominators.

   Note: Prime factor is a number that has no factors aside from itself and 1.

6. $\frac{7}{12} + \frac{4}{9} = \frac{21}{36} + \frac{16}{36} = \frac{21+16}{36} = \mathbf{\frac{37}{36}} = \mathbf{1\frac{1}{36}}$

   Solution: Using Cake Method in finding the LCD

   3 | 12   9   divide 6 by 3, divide 9 by 3
       4   3   no common factor

   LCD: 3 x 4 x 3 = **36**

7. $\frac{3}{8} + \frac{1}{6} + \frac{5}{12} = \frac{9}{24} + \frac{4}{24} + \frac{10}{24} = \frac{9+4+10}{24} = \mathbf{\frac{23}{24}}$

   Solution: Using Cake Method in finding the LCD

   2 | 8   6   12   divide 8 by 2, divide 6 by 2, divide 12 by 2
   2 | 4   ③   6   4 and 6 have common factor
   3 | ② ③   3   bring down 3 because 2 is not its factor
       ②   1   1   bring down 2 because 3 is not its factor

   LCD: 2 x 2 x 3 x 2 x 1 x 1 = **24**

   Did you understand the process on how to add rational numbers with similar and dissimilar fractions? What do you think will be the process on how to subtract rational numbers? Do you think the process will be the same?

Subtracting Rational Numbers in Fraction Form

If you have mastered on how to add rational numbers, then it will be easier for you to subtract rational numbers. Try to observe the similarities of the process in adding and subtracting rational numbers.

> To subtract fractions having the same denominator (also known as **similar fractions**), subtract the numerators and place the result over the common denominator.
> $$\frac{a}{c} - \frac{b}{c} = \frac{a-b}{c} \; ; c \neq 0$$

Examples in subtracting similar fractions

1. $\frac{8}{9} - \frac{4}{9} = \frac{8-4}{9} = \frac{4}{9}$

> **Simplify:** Find the greatest common factor of 2 and 12, that is 2, divide the numerator and denominator by 2:
> 2 ÷ 2 = 1, 12 ÷ 2 = 6. Therefore, $\frac{2}{12} = \frac{1}{6}$.

2. $\frac{5}{12} - \frac{3}{12} = \frac{5-3}{12} = \left(\frac{2}{12}\right) = \frac{1}{6}$

> **Simplify Improper Fraction:**
> numerator divided by the denominator

3. $\frac{17}{11} - \frac{5}{11} = \frac{17-5}{11} = \left(\frac{12}{11}\right) = 1\frac{1}{11}$

4. $5\frac{7}{8} - 3\frac{5}{8} = (5-3)\frac{7-5}{8} = 2\frac{2}{8} = 2\frac{1}{4}$

5. $\frac{17}{10} - \frac{7}{10} = \frac{17-7}{10} = \frac{10}{10} = 1$

> **1** is a whole number that could be written in fraction form with a denominator of 10, that is $\frac{10}{10}$. The denominator depends on the other fraction.

6. $\left(1\right) - \frac{3}{10} = \frac{10}{10} - \frac{3}{10} = \frac{7}{10}$

> Whole number 4 could be written in fraction form where 8 is the denominator, that is $3\frac{8}{8}$.

7. $\left(4\right) - \frac{5}{8} = 3\frac{8}{8} - \frac{5}{8} = 3\frac{3}{8}$

> Since 4 and 7 cannot be subtracted, borrow 1 from the whole number 1, as 1 could be written as $\frac{9}{9}$, so, $\frac{9}{9} + \frac{4}{9} = \frac{13}{9}$.

8. $1\frac{4}{9} - \frac{7}{9} = \frac{13}{9} - \frac{7}{9} = \frac{6}{9} = \frac{2}{3}$

9. $6\frac{11}{15} - 2\frac{4}{15} = (6-4)\frac{11-4}{15} = 2\frac{7}{13}$

10. $5\frac{6}{11} - 2\frac{8}{11} = \left(4\frac{11}{11} + \frac{6}{11}\right) - 2\frac{8}{11} = 4\frac{17}{11} - 2\frac{8}{11} = 2\frac{9}{11}$

Multiplying Rational Numbers in Fraction Form

To multiply fractions, multiply the numerators and the denominators. Then reduce the product to lowest term if necessary. Cancellation is a process that facilitates multiplication. To cancel means to divide a numerator and denominator by their greatest common factor.

Examples in multiplying rational numbers

1. $\frac{5}{7} \times \frac{3}{4} = \frac{5 \times 3}{7 \times 4} = \mathbf{\frac{15}{28}}$

2. $\frac{6}{11} \times \frac{3}{8} = \frac{6 \times 3}{11 \times 8} = \frac{18}{88} = \mathbf{\frac{9}{44}}$

In example number 2, you can also use the cancellation method. When do you know that cancellation can be applied? Just check a pair from a numerator and a denominator if they have common factor. In the given example there are 4 ways to find a pair, first pair: 6 and 11, second pair: 3 and 8, third pair: 6 and 8, fourth pair: 3 and 11. Among the pairs given, which has common factor?

$$\frac{6}{11} \times \frac{3}{8} = \frac{\overset{3}{\cancel{6}} \times 3}{11 \times \underset{4}{\cancel{8}}} = \mathbf{\frac{9}{44}}$$

6 and 8 have greatest common factor 2, therefore, divide numerator and denominator by 2.

3. $\frac{5}{12} \times \frac{6}{11} = \frac{5 \times \overset{1}{\cancel{6}}}{\underset{2}{\cancel{12}} \times 11} = \mathbf{\frac{5}{22}}$

6 and 12 have greatest common factor 6, therefore, divide numerator and denominator by 6.

4. $\frac{10}{15} \times \frac{7}{9} = \frac{\overset{2}{\cancel{10}} \times 7}{\underset{3}{\cancel{15}} \times 9} = \mathbf{\frac{14}{27}}$

10 and 15 have greatest common factor 5, therefore, divide numerator and denominator by 5.

5. $\frac{5}{13} \times \frac{9}{12} = \frac{5 \times \overset{3}{\cancel{9}}}{13 \times \underset{4}{\cancel{12}}} = \mathbf{\frac{15}{52}}$

9 and 12 have greatest common factor 3, therefore, divide numerator and denominator by 3.

6. $5 \times \frac{3}{8} = \frac{5 \times 3}{1 \times 8} = \frac{15}{8} = \mathbf{1\frac{7}{8}}$

For every whole number, the denominator is always 1.

7. $2\frac{3}{4} \times \frac{4}{5} = \frac{11}{4} \times \frac{4}{5} = \frac{11 \times \overset{1}{\cancel{4}}}{\underset{1}{\cancel{4}} \times 5} = \frac{11}{5} = \mathbf{2\frac{1}{5}}$

Mixed form should be written in improper fraction, $2\frac{3}{4} = \frac{11}{4}$. How? 2 x 4 + 3 =11, then copy the denominator.

Was it easy to multiply rational numbers? What do you think was the purpose of cancellation method? Was it useful?

Dividing Rational Numbers in Fraction Form

To divide a fraction by another fraction, multiply the dividend by the reciprocal of the divisor. In symbols, if:

$$\frac{a}{b} \div \frac{c}{d} = K, then\ K = \frac{a}{b} \times \frac{d}{c}\ \text{where } b, c \text{ and } d \text{ are not equal to zero.}$$

Examples in dividing rational numbers

1. $\dfrac{5}{8} \div \dfrac{2}{3} = \dfrac{5}{8} \times \dfrac{3}{2} = \dfrac{5 \times 3}{8 \times 2} = \dfrac{15}{16}$

   reciprocal

2. $3\dfrac{1}{4} \div 1\dfrac{3}{8} = \dfrac{13}{4} \div \dfrac{11}{4} = \dfrac{13}{4} \times \dfrac{4}{11} = \dfrac{13 \times \overset{1}{\cancel{4}}}{\underset{1}{\cancel{4}} \times 11} = \dfrac{13}{11} = \mathbf{1\dfrac{2}{11}}$

Change first the mixed form into improper fraction, then the operation to multiplication and the divisor to its reciprocal. Next, proceed to the process on how to multiply fractions. You may also apply cancellation method if needed. Finally, simplify your answer to the lowest term or mixed number.

3. $4 \div \dfrac{5}{6} = \dfrac{4}{1} \times \dfrac{6}{5} = \dfrac{4 \times 6}{1 \times 5} = \dfrac{24}{5} = \mathbf{4\dfrac{4}{5}}$

4. $\dfrac{4}{9} \div 6 = \dfrac{4}{9} \times \dfrac{1}{6} = \dfrac{\overset{2}{\cancel{4}} \times 1}{9 \times \underset{3}{\cancel{6}}} = \mathbf{\dfrac{2}{27}}$

5. $\dfrac{7}{11} \div \dfrac{7}{11} = \dfrac{\overset{1}{\cancel{7}}}{\underset{1}{\cancel{11}}} \times \dfrac{\overset{1}{\cancel{11}}}{\underset{1}{\cancel{7}}} = \mathbf{1}$

6. $\dfrac{5}{9} \div \dfrac{9}{5} = \dfrac{5}{9} \times \dfrac{5}{9} = \mathbf{\dfrac{25}{81}}$

What was the key word that you should remember in dividing rational numbers? Were there similarities on multiplying and dividing rational numbers?

Jumpstart

Lesson 2: Operations on Rational Numbers in Decimal Form

In this lesson we are going to apply what you have learned on how to perform operations on integers and fraction. Before we proceed to the lesson proper, let's try how well you mastered the basic concepts needed in performing operations on rational numbers.

Activity 2: Think of Me.

Answer the following questions.

1) What is the reciprocal of the fraction $-\frac{2}{3}$?

2) What is the greatest common factor of the fraction $\frac{12}{18}$?

3) What is the least common denominator of the fractions $\frac{3}{8}$ and $\frac{1}{6}$?

4) How are you going to write the fraction form of a whole number 1 if the denominator is 5?

5) How are you going to write the decimal form of the fraction $\frac{3}{4}$?

6) How are you going to write the fraction form of the decimal number 0.25?

Did you answer the activity correctly? If you have answered it perfectly correct, then it is time for you to understand the concepts on how to perform operations with rational numbers in decimal form.

Adding and Subtracting Rational Numbers Decimal Numbers

To add or subtract rational numbers in decimal form, write the numbers in a column with the decimal points aligned. Then, add or subtract same as with whole numbers.

Examples:

1. Add 18.75 and 12. 36

$$
\begin{array}{r}
18.75 \\
+\ 12.36 \\
\hline
31.11
\end{array}
$$
} align the decimal point

31.11   affix decimal point

2. Add 12.5 and 3.75

$$
\begin{array}{r}
12.50 \\
+\ \ 3.75 \\
\hline
26.25
\end{array}
$$

12.50   annex one zero
+   3.75   align
26.25   affix decimal point

3. Add 0.9, 0.565 and 0.37

$$
\begin{array}{r}
0.900 \\
0.565 \\
0.370 \\
\hline
1.835
\end{array}
$$

0.900   annex two zeros
+ 0.565
0.370   annex one zero
1.835   affix decimal point

4. Subtract 9.56 and 3.7

$$
\begin{array}{r}
9.56 \\
-\ 3.70 \\
\hline
5.86
\end{array}
$$

9.56
− 3.70   annex one zero
5.86   affix decimal point

5. Subtract 5.88 from 7.9

$$
\begin{array}{r}
7.900 \\
-\ 5.883 \\
\hline
2.017
\end{array}
$$

7.900   annex two zeros
− 5.883   subtract
2.017

6. The sum of 75 and 62.06 subtracted by 92

$$
\begin{array}{r}
75.00 \\
+\ 62.06 \\
\hline
137.06
\end{array}
\qquad
\begin{array}{r}
137.06 \\
-\ 92.00 \\
\hline
45.06
\end{array}
$$

Multiplying Rational Numbers in Decimal Form

To multiply rational numbers in decimal form, multiply it same as with whole numbers. Then, count the number of decimal places in the factors where it should be the same as the number of decimal places in the product starting from right to left.

Examples:

1. Multiply 0.52 and 0.6

```
   0.52   two decimal places
×   0.6    one decimal place
  0.312   three decimal places
```

2. Multiply 2.23 and 1.54

```
   2.23   two decimal places
×  1.54   two decimal places
    892
   1115
   223
  3.4342  four decimal places
```

Dividing Rational Numbers in Decimal Form

1. To divide a decimal by a whole number, proceed as with whole numbers. Write the decimal point of the quotient directly above the decimal point of the quotient directly above the decimal point of the dividend. The number of the decimal places in the quotient is equal to the number of decimal places in the dividend.

2. To divide decimal number to another decimal number, or a whole number by a decimal number, move the decimal point of the divisor to the right until it becomes a whole number. Then, move the decimal point of the dividend the same number of places to the right, annexing zeros if necessary.

Examples:

1. Divide 13.8 by 6

```
        2.3
    6 | 13.8
    −  12
        18
    −   18
         0
```

2. Divide 17.066 by 2.3

```
                        7.42
   2.3 | 17.066    23 | 170.66
                  −   161
                       96
                  −    92
                       46
                       46
                        0
```

3. Divide 24 by 0.05

$$
0.05\overline{)24.00} \qquad
\begin{array}{r}
480 \\
5\overline{)2400.} \\
-\;\underline{20} \\
40 \\
-\;\underline{40} \\
0 \\
\underline{0} \\
0
\end{array}
$$

How was your experience in performing the operations on rational numbers in decimal form? Did you take down note on the important details to remember? Hence, try to apply the concepts that you have learned.

Explore

Activity 3: *Process Me!*

Directions: Perform the indicated operation.

1. $4\frac{7}{12} + 3\frac{5}{12} =$

2. $\frac{3}{4} + \frac{5}{6} + \frac{3}{8} =$

3. $\frac{13}{20} - \frac{7}{20} =$

4. $5\frac{1}{6} - 3\frac{2}{3} =$

5. $\frac{6}{13} \times \frac{13}{24} =$

6. $2\frac{2}{3} \times 2\frac{3}{4} =$

7. $\frac{8}{15} \div \frac{4}{9} =$

8. $5\frac{1}{4} \div 2\frac{2}{5} =$

Activity 4. Alert Me!

Perform the indicated operation.

1) 0.82 + 0.98

2) 2.7 + 8.95

3) 0.9 – 0.72

4) 5.56 – 2.8

5) 0.26 x 0.8

6) 0.32 x 0.27

7) 3.4 ÷ 0.2

8) 15.3 ÷ 3

Deepen

Activity 5: Riddle.

Divide 20 by half and add 7, what do you get?

Directions: Match column A with Column B. Refer to the boxes at the bottom and write the letter that corresponds to the number to discover the answer to the trivia.

Column A

1. $5\frac{3}{7} + 3\frac{4}{7}$

2. $2\frac{5}{6} + 1\frac{2}{9}$

3. $5\frac{3}{7} - 3\frac{4}{7}$

4. $5 - 1\frac{3}{4}$

5. $5\frac{5}{6} - 1\frac{4}{9}$

6. $\frac{3}{7} \times \frac{3}{7}$

7. $\frac{3}{7} \div \frac{3}{7}$

8. $3\frac{1}{7} \times 5\frac{1}{4}$

9. $3\frac{1}{3} \div 2$

10. $\left(1\frac{4}{7} - \frac{8}{7}\right) \div 2\frac{1}{3}$

Column B

E. $\frac{9}{49}$

F. 1

N. $1\frac{2}{3}$

O. $1\frac{6}{7}$

P. $2\frac{1}{7}$

R. $3\frac{1}{4}$

S. $4\frac{1}{18}$

T. $4\frac{7}{18}$

V. 9

Y. $16\frac{1}{2}$

7	3	4	5	8	2	10	1	6	9

Activity 6: Riddle.

What can you put between a 6 and a 7 so that the result is greater than a six, but less than a seven?

Directions: Match column A with Column B. Refer to the boxes at the bottom and write the letter that corresponds to the number to discover the answer to the trivia.

Column A

1. 24.6 + 17.48
2. 32.7 – 9.83
3. 17.24 + 29.6 – 39.72
4. 0.9 x 8
5. 5.76 ÷ 0.08
6. 3.12 x 0.3 ÷ 0.12
7. (12.3 x 3) ÷ (9.02 + 3.28)

Column B

A. 3
C. 7.12
D. 7.2
E. 7.8
I. 22.87
L. 42.08
M. 72

4	6	3	2	5	7	1

Gauge

Directions: Read and answer each statement below carefully. Select the letter of the correct answer and write it in a separate sheet of paper.

1. What should be the least common denominator of $\frac{1}{12}$ and $\frac{5}{8}$ to make them similar terms?
   A. 8   B. 12   C. 24   D. 32

2. How are you going to write $\frac{50}{9}$ in mixed number to its lowest term?
   A. $5\frac{7}{9}$ B. $5\frac{2}{3}$ C. $5\frac{5}{9}$ D. $5\frac{4}{9}$

3. What is the simplified form of the expression $\frac{2}{9} + \frac{1}{12}$?
   A. $\frac{1}{3}$ B. $\frac{11}{36}$ C. $\frac{3}{12}$ D. $\frac{3}{21}$

4. What must be added to $2\frac{2}{5}$ to obtain 5?
   A. $2\frac{2}{5}$ B. $2\frac{3}{5}$ C. $3\frac{2}{5}$ D. $3\frac{3}{5}$

5. What is the difference of $\frac{5}{7}$ and $\frac{3}{14}$?
   A. $\frac{2}{7}$ B. $\frac{5}{14}$ C. $\frac{1}{2}$ D. $\frac{4}{7}$

6. What is $6\frac{2}{7}$ in improper fraction?
   A. $\frac{88}{7}$ B. $\frac{44}{7}$ C. $\frac{40}{7}$ D. $\frac{15}{7}$

7. What is the simplified form of $\frac{8}{9} \times 1\frac{1}{6}$?
   A. $1\frac{1}{27}$ B. $1\frac{2}{27}$ C. $2\frac{1}{27}$ D. $2\frac{2}{27}$

8. Which of the following is the product of $\frac{3}{10}$ and $3\frac{1}{5}$
   A. $\frac{9}{50}$ B. $\frac{4}{15}$ C. $\frac{2}{5}$ D. $\frac{24}{25}$

9. How are you going to write the reciprocal of $-\frac{7}{10}$?
   A. $-\frac{10}{7}$ B. $-\frac{7}{10}$ C. $\frac{7}{10}$ D. $\frac{10}{7}$

10. What is the quotient of $\frac{4}{9}$ and 6 ?
    A. $\frac{4}{27}$ B. $\frac{2}{27}$ C. $2\frac{2}{3}$ D. 3

11. What is the quotient of $2\frac{7}{10}$ and $3\frac{3}{8}$
    A. $3\frac{4}{5}$ B. $2\frac{4}{5}$ C. $1\frac{4}{5}$ D. $\frac{4}{5}$

12. What is the difference of 15.7 and 8.39?
    A. 6.31   B. 6.49   C. 7.31   D. 7.49

13. What is the product of 2.6 and 1.37?
    A. 0.3462   B. 3.462   C. 34.62   D. 346.2

14. What is the quotient of 1.68 and 0.08?
    A. 0.021   B. 0.21   C. 2.1   D. 21

15. Zsean made pizza, $\frac{3}{4}$ of the pizza was eaten by his brother Ali. Which of the decimal number is equivalent to the pizza left?
    A. 0.75   B. 0.5   C. 0.25   D. 0.1

References

A. Books

- Oronce, Orlando A. & Mendoza, Marilyn O. E-Math 7 Worktext in Mathematics. Rex Books Store, Inc (RSBI). K to 12 Third Edition 2012. ISBN 978 – 971 – 23 – 6198 - 2

- Interactive Mathematics 7 –Innovative Educational Materials, Inc. Copyright 2013.ISBN: 978-971-699-516-9

B. Online Resources
- https://icebreakerideas.com>mathriddles<forkids&adults

- Google dictionary: definition from Oxford Languages

- https://www.mathisfun.com