JANUARY
Makugihon
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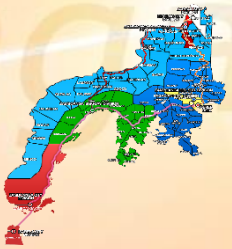
Republic of the Philippines
Department of Education
Regional Office IX, Zamboanga Peninsula



Zest for Progress
Zeal of Partnership

6

MATHEMATICS

Quarter 2 – Module 1:

Ratio

Name of Learner: _____

Grade & Section: _____

Name of School: _____

Mathematics – Grade 6
Alternative Delivery Mode
Quarter 2 – Module 1: Ratio
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Secretary: Leonor Magtolis Briones
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Development Team of the Module

Writer:		**Hezel B. Balbuena**
Editor:		**Agustina P. Magalso**
Reviewer:		**Ismael K. Yusoph**
Management Team:	**SDS**	**Ma. Liza R. Tabilon, Ed.D CESO V**
	ASDS	**Ma. Judelyn J. Ramos, CESE**
	ASDS	**Armando P. Gumapon, CESE**
	ASDS	**Judith V. Romaguera, CESE**
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	EPS-LRMS	**Evelyn C. Labad**
	PSDS	**Maria Theresa M. Imperial**
	Principal	**Miela H. De Gracia**

For inquiries or feedback, please write or call:
Department of Education
Schools Division of Zamboanga del Norte
Capitol Drive, Estaka, Dipolog City
Fax: (065) 908 0087 | Tel: (065) 212 5843, (065) 212 5131
zn.division@deped.gov.ph

What I Need to Know

This module was designed and written with you in mind. It is here to help you master about percentage, rate, and base. The scope of this module permits it to be used in many different learning situations. The language used recognizes the diverse vocabulary level of students. The lessons are arranged to follow the standard sequence of the course. But the order in which you read them can be changed to correspond with the textbook you are now using.

After going through this module, you are expected to:

- Express one value as a fraction of another given their ratio and vice versa.(M6NS-IIa-129)
- Define and illustrates the meaning of ratio and proportion using concrete or pictorial model.(M6NS-IIb-131)

Lessons 1 - 2	**Expressing one value as a fraction of another given their ratio and vice versa and defining and illustrates the meaning of ratio and proportion using concrete or pictorial model.**

What's In

Choose the letter of the correct answer. Write your answer on your activity notebook.

1. In a class there are 25 girls and 12 boys. The ratio of boys to girls is:
   a. 25:12 b. 12:25 c. 4:3 d. none of these

2. What is the ratio: □□□ is to △△△△
   a. 4:3 b. 4 is to 3 c. ¾ d. none of these

3. The ratio 35: 84 in simplest form is:
   a. 7:12 b. 5:7 c. 5:12 d. none of these

What's New

In Mrs. Dela Rosa's Grade 6 Math class, there are 22 girls and 19 boys. Compare the number of girls to the number of boys and vice versa.

Can you express the comparison in three ways?

What is ratio?

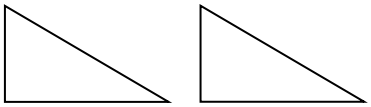
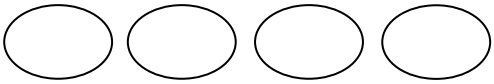
How will you compare quantities in ratio form?

What are the three ways in expressing such comparison?

Can you tell the ratio of the following?

1.  to 

_____

2.  to 

_____

What is It

To compare, let us use the concept of ratio. Ratio is a comparison of two quantities. If there are 22 girls and 19 boys, we can say that 22 is to 19. Other ways to express such comparison is by writing them using a colon, 22:19 or writing them in fraction form 22/19.

To compare the number of boys to the number of girls can be expressed in three ways as:

19 is to 22- word form

19:22 – colon form

19/22- fraction form

The concept of ratio is used to compare two or more quantities with the same units.

If there are 15 boys and 12 girls in a class, then, the ratio of the boys to the girls is 15 is to 12 and the ratio of the girls to boys is 12 is to 15. In the ratio, 15 is to 12, the first term is 15 and the second term is 12. Even if the ratio is in fractional form, we say *fifteen is to twelve*. Since the ratio is not yet in its simplest form, we can express it as:

$\frac{15}{12}$

$\frac{15 \div 3 = 5}{12 \div 3 = 4}$

Find the Greatest Common Factor for both 15 and 12. We will use 3, since 3 can divide both 15 and 12.
Divide both numerator and denominator by 3 to find its lowest term.
Since 5/4 has no other common factor that can divide, therefore 5/4 is its lowest term.

Ratio must be expresses in simplest form, which means that the terms are relatively prime to each other.

Example 1 Compare the number of vowels to consonants and vice versa in the word MATHEMATICS, in word, colon, and fraction forms.

Vowels- A, E, and I → 3

Consonants- M, T, H, C and S → 5

Ratio of vowels to consonants:

Word form → 3 is to 5 colon form → 3:5 fraction form → 3/5

Ratio of consonants to vowels:

Word form → 5 is to 3 colon form → 5:3 fraction form → 5/3

Example 2 Express the ratio of two 25-centavo coins to P2.50 coins in colon form. Simplify.

P2.50= ten 25 centavo coins

2:10- the ratio of the two quantities

1:5- in simplest form

Make sure that the two quantities have the same units.

Example 3 Compare the lengths of two objects measuring 45 cm and 1 m respectively.

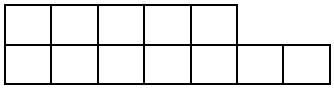
1m= 100 cm

Ratio of the length- 45:100

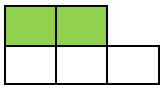
In simplest form: 9:2

Example 4 Illustrate using squares; the ratio of A:B is 5: 7

A
B



Example 5 Illustrate 2 is to 3.



2:3

2:3

There are instances when terms of the ratio do not have the same units or classifications. This special ratio is called *rate*.

Example 6 Joshua scored 168 points in 7 basketball games. Express in lowest terms, the average rate of the number of points that Joshua scored in every game.

Find the Greatest Common Factor for both 168 and 7. We will use 7, since 7 is the greatest number that can divide both 168 and 7. Divide both numerator and denominator by 7 to find its lowest term. Since 24/1 have no other common factor that can divide, therefore

Rate= $\frac{168 \text{ points}}{7 \text{ games}} = \frac{24 \text{ points}}{1 \text{ game}}$ = 24 points/game

What's More

Illustrate the following using squares. Show your illustrations in your working notebook.

1. Using square, illustrate the ratio of C:D is 2:3
2. Write the ratio in three ways.

3months to 5 weeks

3. The ratio of 24 girls to 18 boys, express this to lowest term.

What I Have Learned

Ratio is a comparison of two quantities which can be written in colon, word or fraction form.Rate is a comparison of twoquantities but may have differentunits of measures and their ratio hasa unit of measure.

What I Can Do

A. Write the ratio in three ways.

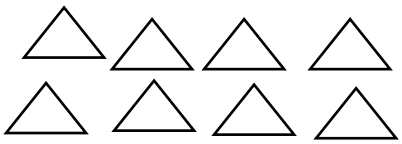
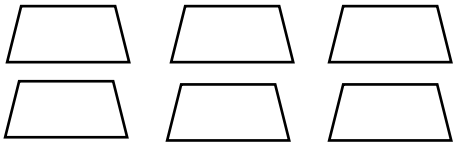
1. 8 books to 13 notebooks

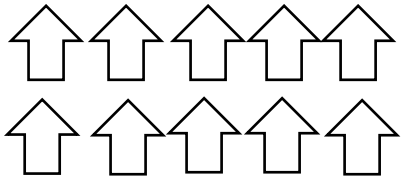
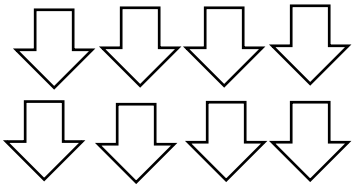
B. Solve the following problems.

2. A student solved six out of ten problems correctly. What is the ratio of the number of correct answers to the wrong answers?
3. The ratio of boys to girls in Math Club is 4:5. If there are 45 who joined the Club, how many male members are there in the club?

Assessment

A. Write a ratio for each of the following in three ways. Write your answers on your working notebook.

1.  is to 

2.  is to 

B. Express each rate in lowest terms.

3. The ratio of 36 apples to 18 children
4. The ratio of 48 patients to 6 nurses

C. Solve the problem.

5. A recipe calls for 6 cups of milk to 8 cups of flour. Write in simplest form, the ratio of the number of cups of milk to the number of cups of flour in this recipe.

Answer Key

What's In

1. A
2. C
3. C

What's More

A.1. Illustrations may vary.

B.2.

Word Form	Colon Form	Fraction Form
12 is to 5	12:5	12/5

C.

3. 4:3

What I Can Do

A.1.

Word Form	Colon Form	Fraction Form
1. 8 is to 13	8:13	8/13

B.

2. 6:4 or 3:2

3. 20

Assessment

A.

Word Form	Colon Form	Fraction Form
1. 8 is to 6	8:6	8/6
2. 10 is to 8	10:8	10/8

B.

3. 2 apples/child

4. 8 patients/nurse

5. 6:8 or 3:4

References

- 21st Century MATHletes Textbook
- Math for Life Worktext in Mathemathetic
- K to 12 Grade 6 Curriculum Guide
- K to 12 Teacher's Guide in Mathematics
- Number Smart 6

Lesson Guide in Elementary Mathematics Grade 6 .