

MATHEMATICS 6

Second Quarter
DLA 1

Type of Activity: Concept Development

Activity Title : Divisibility Rules
Learning Objective : Formulates the divisibility rules for 2 – 10.
Predicts whether a number is divisible by another number.
Observes and teach the laws of the Church.

Concept Notes:

Divisibility Tests

Divisible by:	Here's How
2	If the number is an even number
3	If the sum of the digits of the number is divisible by 3
4	If the last two digits of the number is divisible by 4 or if the number ends in two zeros
5	If the last digit of the number is 0 or 5
6	If the number is both divisible by 2 and 3
7	Double the last digit, then subtract it from the remaining digits. If the difference is a multiple of 7, then it is divisible by 7. Repeat the process if necessary.
8	If the last three digits of the number is divisible by 8 or if the number ends in three zeros.
9	If the sum of the digits of the number is a multiple of 9.
10	If the number ends in 0
11	If the difference between the sum of the digits in the odd places and sum of the digits in the even places is a multiple of 11 or equal to 0
12	If the number is both divisible by three and four

MATHEMATICS 6

Second Quarter
DLA 2

Type of Activity: Concept Development

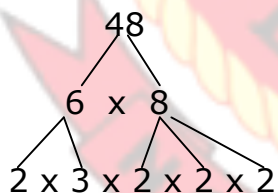
Activity Title : Prime Factorization
Learning Objective : Expresses a number as a product of prime numbers in exponential form.
Uses the factor tree and the decomposition method to express a number as a product of prime numbers.
Initiates others to be fruitful follower in school, at home and in the community.

Concept Notes:

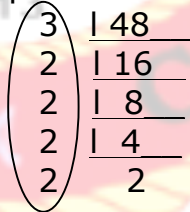
1. Prime numbers have only two factors, itself and 1.
2. Composite numbers have more than two factors.
3. Prime factorization is the process of expressing a composite number as a product of its prime factors.
4. The factor tree and the decomposition method can be used to find the prime factors of a number.

Ex.

Factor Tree



Decomposition Method



$$48 = 2 \times 3 \times 2 \times 2 \times 2$$

or

$$48 = 2^4 \times 3$$

$$48 = 3 \times 2 \times 2 \times 2 \times 2 \text{ or } 48 = 3 \times 2^4$$

5. Repeated prime factors are expressed in exponential form.

MATHEMATICS 6

Second Quarter
DLA 3

Type of Activity: Concept Development

- Activity Title : Greatest Common Factor
Learning Objectives : Find the GCF of given sets of numbers.
Use GCF to solve problem situations.
Practice in real life the two greatest commandments of God and practice humility at all times.
Reference : Mathematics in a Challenging World 6
Math for Life 6
Author : Luzviminda Funa and Sylvia Ortiz
Amelia Wright and Adela Villamayor

Concept Notes:

1. The GCF is the largest number that is a factor of two or more numbers.
2. To find the GCF, we can use:
 - listing method
 - prime factorization
 - decomposition method

Ex. Find the GCF 9 and 12

Listing method

- list down the factors
 $9 = 1, 3, 9$
 $12 = 1, 2, 3, 4, 6, 12$
- find the common factors
 $CF = 1, 2, 3$
- find the greatest common factor
 $GCF = 3$

Prime factorization

- find the prime factorization
 $9 = 3 \times 3$
 $12 = 2 \times 2 \times 3$
- find the common prime factors
 $CF = 3$
 $GCF = 3$

Decomposition Method

- divide the numbers with a common prime divisor
$$\begin{array}{r|rr} 3 & 9 & 12 \\ & 3 & 4 \end{array}$$
- copy the common divisor
 $LCM = 3$
 $= 3$

MATHEMATICS 6

Second Quarter
DLA 4

Type of Activity: Concept Development

Activity Title	:	Least Common Multiple
Learning Objectives	:	Find the LCM of given sets of numbers. Use LCM to solve problem situations. Practice humility at all times.
Reference	:	Mathematics in a Challenging World 6 Math for Life 6
Author	:	Luzviminda Funa and Sylvia Ortiz Amelia Wright and Adela Villamayor

Concept Notes:

1. The LCM is the smallest multiple that is common between two or more numbers.
2. To find the LCM, we can use:
 - listing method
 - prime factorization
 - decomposition method

Ex. Find the LCM 9 and 12

Listing method

- | | |
|----------------------------------|----------------------------------|
| - list down the multiples | $9 = 9, 18, 27, 36, 45, \dots$ |
| | $12 = 12, 24, 36, 48, 60, \dots$ |
| - find the common multiples | CM = 36 |
| - find the least common multiple | LCM = 36 |

Prime factorization

- | | |
|---------------------------------|-------------------------------------|
| - find the prime factorization | $9 = 3 \times 3$ |
| | $12 = 2 \times 2 \times 3$ |
| - find the common prime factors | CM = $2 \times 2 \times 3 \times 3$ |
| | LCM = 36 |

Decomposition Method

- divide the numbers with a common prime divisor

$$\begin{array}{r|rr} 3 & 9 & 12 \\ 2 & 3 & 4 \\ & 3 & 2 \end{array}$$

- copy the common divisor

$$\text{LCM} = 3 \times 2 \times 3 \times 2$$

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MATHEMATICS 6

Second Quarter
DLA 5

Type of Activity: Concept Development

Activity Title	:	Concept of Fractions Kinds of Fractions
Learning Objectives	:	Recall the concepts of fractions. Identify the different kinds of fractions. Write equivalent fractions for given regions. Shares without expecting something in return.
Reference	:	Mathematics in a Challenging World 6 Math for Life 6
Author	:	Luzviminda Funa and Sylvia Ortiz Amelia Wright and Adela Villamayor

Concept Notes:

1. A fraction is one or more of the equal parts of a whole, a set or a line.
2. The numerator tells how many of the parts are taken or eaten or considered.
3. The denominator tells the number of equal parts the whole was divided.
4. Kinds of fraction:
 - proper fractions are less than 1
 - improper fractions equal or greater than 1
 - unit fraction has a numerator of 1
 - mixed number a whole number and a fraction
 - similar fractions have the same denominators
 - dissimilar fractions have different denominators
 - equivalent fractions name the same parts

MATHEMATICS 6

Second Quarter
DLA 6

Type of Activity: Concept Development

Activity Title	:	Improper Fractions and Mixed Numbers
Learning Objectives	:	Change improper fractions to mixed numbers and vice versa. Draw illustrations for given mixed numbers and improper fractions. Admits ones limitations.
Reference	:	Mathematics in a Challenging World 6 Number Smart 6
Author	:	Luzviminda Funa and Sylvia Ortiz Teodora Riel and Herminia Torres

Concept Notes:

1. To change an improper fraction to a mixed number:
 - divide the numerator by the denominator
 - the quotient will be the whole number and the remainder will become the numerator.
 - copy the same denominator

Ex. $\frac{7}{5}$ $7 \div 5$ $\begin{array}{r} \underline{1} \rightarrow \text{whole number} \\ 5 \ / \ 7 \\ \underline{5} \\ 2 \rightarrow \text{numerator} \end{array}$ $\frac{7}{5} = 1\frac{2}{5}$

2. To change a mixed number to and improper fraction:
 - multiply the denominator by the whole number
 - add the product to the numerator
 - write the sum as the new numerator and copy the denominator

Ex. $2\frac{3}{8}$ $8 \times 2 = 16$ $2\frac{3}{8} = \frac{19}{8}$
 $16 + 3 = 19$

MATHEMATICS 6

Second Quarter
DLA 6

Type of Activity: Concept Development

Activity Title	:	Similar and Dissimilar Fractions
Learning Objectives	:	Recall how to find the LCM Change dissimilar fractions to similar fractions. Participates actively in environmental programs such as Garbology.
Reference	:	Mathematics in a Challenging World 6 Number Smart 6
Author	:	Luzviminda Funa and Sylvia Ortiz Teodora Riel and Herminia Torres

Concept Notes:

- To change dissimilar fractions to similar:
 - find the LCM/LCD of the denominators
 - divide the LCD by the denominator
 - multiply the quotient to the numerator
 - write the new numerator over the LCD

Ex.

$$\frac{7}{9} \text{ and } \frac{5}{6} \quad - \text{ the LCD of 9 and 6 is 18}$$

$$\frac{7}{9} = \frac{14}{18} \quad - 18 \div 9 \times 7 = 14$$

$$\frac{5}{6} = \frac{15}{18} \quad - 18 \div 6 \times 5 = 15$$

$$\frac{7}{9} \text{ and } \frac{5}{6} = \frac{14}{18} \text{ and } \frac{15}{18}$$

MATHEMATICS 6

Second Quarter
DLA 7

Type of Activity: Concept Development

Activity Title	:	Comparing and Ordering Fractions
Learning Objectives	:	Compare and order fractions in ascending and descending order. Predict the pattern in comparing and ordering fractions. Practices the teachings of the Church.
Reference	:	Mathematics in a Challenging World 6 Math Beyond Time 6
Author	:	Luzviminda Funa and Sylvia Ortiz Josefina Suarez

Concept Notes:

1. To compare similar or like fractions, the greater the numerator, the greater is the value of the fraction.
2. To compare dissimilar or unlike fractions, find their cross products.

Ex. $\frac{2}{5}$ and $\frac{3}{7}$ $\frac{2}{5}$ and $\frac{3}{7}$ $\frac{2}{5}$ and $\frac{3}{7}$ $\frac{2}{5} < \frac{3}{7}$

14 is less than 15, therefore, $\frac{2}{5}$ is less than $\frac{3}{7}$

3. To order a set of fractions in ascending or descending order, rename the fractions to similar fractions, then compare the numerators.

Ex. $\frac{1}{3}$ $\frac{3}{4}$ $\frac{2}{12}$ $\frac{5}{6}$ \longrightarrow $\frac{4}{12}$ $\frac{9}{12}$ $\frac{2}{12}$ $\frac{10}{12}$

Ascending order $\frac{2}{12}$, $\frac{4}{12}$, $\frac{9}{12}$, $\frac{10}{12}$

4. To find the fractions between two given fractions, change the fractions to similar fractions.

Ex. $\frac{2}{3}$, $\frac{6}{8}$ $\frac{16}{24}$, $\frac{17}{24}$, $\frac{18}{24}$

MATHEMATICS 6

Second Quarter
DLA 8

Type of Activity: Concept Development

Activity Title	:	Simplifying Fractions
Learning Objectives	:	Recognize fractions that are in lowest terms. Reduce fractions to lowest terms. Discover how to identify fractions that are expressed in lowest terms. Expresses one's spiritual beliefs. Shows trust and faith to God.
Reference	:	Mathematics in a Challenging World 6 Math Beyond Time 6
Author	:	Luzviminda Funa and Sylvia Ortiz Josefina Suarez

Concept Notes:

1. A fraction is in lowest term when;
 - it is a unit fraction
 - the numerator and the denominator are consecutive numbers
 - the GCF of the numerator and the denominator is 1
2. To reduce a proper fraction to its simplest form, divide both the numerator and the denominator by their GCF.

Ex. $\frac{42}{48} \div \frac{6}{6} = \frac{7}{8}$

3. To reduce an improper fraction to its simplest form, reduce it first to its lowest term then change it to a whole number or a mixed number.

Ex. $\frac{26}{6} \div \frac{2}{2} = \frac{13}{3}$ or $4\frac{1}{3}$

MATHEMATICS 6

Second Quarter
DLA No. 9

Type of Activity: Concept Development

Activity Title	:	Addition of Similar, Dissimilar Fractions and Mixed Numbers
Learning Objectives	:	Add similar, dissimilar fractions and mixed numbers. Solve word problems involving addition of fractions Add fractions with ease and confidence. Practices and lives Mary's virtues.
Reference	:	Mathematics in a Challenging World 6 Math Beyond Time 6
Author	:	Luzviminda Funa and Sylvia Ortiz Josefina Suarez

Concept Notes:

1. Fractions should be similar before they can be added.
2. To add similar fractions, add the numerators then copy the same denominators.
3. To find the sum of dissimilar fractions:
 - find the least common denominator
 - rename the fractions to equivalent fractions with the same denominator
 - add the numerators and write the sum over the common denominator
 - add the whole numbers if there are any
 - express the sum in lowest term or simplest form

Ex.

$$\begin{array}{r} \frac{3}{7} = \frac{15}{35} \\ + \frac{2}{5} = \frac{14}{35} \\ \hline \frac{29}{35} \end{array}$$

LCD of
7 and 5
is
35

$$\begin{array}{r} 3\frac{5}{6} = 3\frac{5}{6} \\ + 2\frac{2}{3} = 2\frac{4}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 5\frac{9}{6} = 5 + 1\frac{3}{6} \\ = 6 + \frac{3}{6} \\ = 6\frac{1}{2} \end{array}$$

MATHEMATICS 6

Second Quarter
DLA No. 10

Type of Activity: Concept Development

Activity Title	:	Subtraction of Similar, Dissimilar Fractions and Mixed Numbers
Learning Objectives	:	Subtract similar, dissimilar fractions and mixed numbers. Solve word problems involving subtraction of fractions Subtract fractions with ease and confidence. Trains regularly and patiently to attain perfection in the intended performance/activity.
Reference	:	Mathematics in a Challenging World 6 Math for Life 6
Author	:	Luzviminda Funa and Sylvia Ortiz Amelia Wright and Adela Villamayor

Concept Notes:

1. Fractions should be similar before they can be subtracted.
2. To subtract a fraction from a whole number, rename the whole number into a mixed number. Subtract the numerator then copy the same denominator and whole number.

Ex. $75 - \frac{7}{8}$ rename 75 – subtract one from 75 and make it into a
 $74 \frac{8}{8} - \frac{7}{8} = 74 \frac{1}{8}$ fraction that is equal to 1 $75 = 74 \frac{8}{8}$

3. To subtract dissimilar fractions, change them to similar first, then subtract the numerator then copy the same denominator.

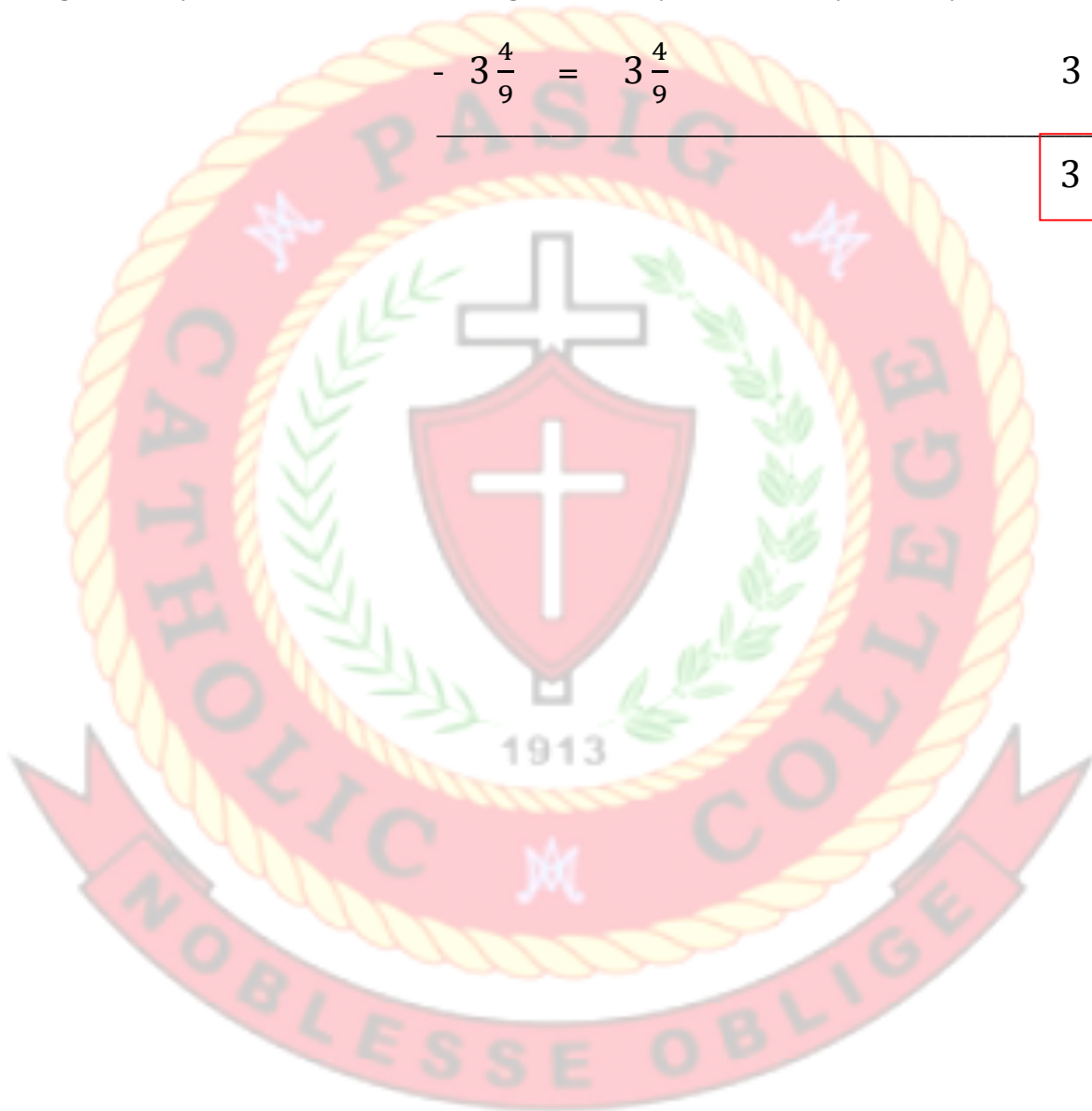
<p>Ex. $\frac{6}{8} - \frac{5}{7} = n$</p> $\begin{array}{r} \frac{6}{8} = \frac{42}{56} \\ - \frac{5}{7} = \frac{40}{56} \\ \hline \frac{2}{56} \text{ or } \frac{1}{28} \end{array}$	$\begin{array}{r} 5 \frac{5}{6} = 5 \frac{5}{6} \\ - 3 \frac{1}{2} = 3 \frac{3}{6} \\ \hline 2 \frac{2}{6} \text{ or } \boxed{2 \frac{1}{3}} \end{array}$
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4. To subtract a greater fraction from a lesser fraction, regroup 1 from the whole number. Rename 1 as a fraction and regroup with the given fraction. Subtract the numerators and whole numbers and reduce the answer to lowest term when needed.

Ex. $7 \frac{1}{3} - 3 \frac{4}{9} = n$ $7 \frac{1}{3} = 7 \frac{3}{9} = (6 \frac{9}{9} + \frac{3}{9}) = 6 \frac{12}{9}$

$- 3 \frac{4}{9} = 3 \frac{4}{9}$ $3 \frac{4}{9}$

$3 \frac{8}{9}$



MATHEMATICS 6

Second Quarter
DLA No. 12

Type of Activity: Concept Development

Activity Title	:	Multiplication of Fractions
Learning Objectives	:	Multiply fractions using varied methods quickly and accurately. Discover some easy ways of multiplying fractions. Analyze and solve problems involving multiplication of fractions. Fulfills what one promised to do.
Reference	:	Mathematics in a Challenging World 6
Author	:	Luzviminda Funa and Sylvia Ortiz

Concept Notes:

1. To find a fractional part of a number, divide the whole number by the denominator, then multiply to the numerator.

Ex. $\frac{2}{3}$ of 27 $27 \div 3 \times 2 = 18$

2. To multiply fractions, multiply the numerators then multiply the denominators. Write the answers in lowest terms.

Ex. $\frac{3}{4} \times \frac{2}{3} = \frac{6}{12}$ or $\frac{1}{2}$

3. To multiply mixed numbers, change them to improper fractions first then multiply the numerators then the denominators. Simplify when needed.

Ex. $4\frac{5}{8} \times 2\frac{1}{3} = \frac{37}{8} \times \frac{7}{3} = \frac{259}{24}$ or $10\frac{19}{24}$

4. Cancellation can be used to make multiplication easier.

Ex. $\frac{\overset{3}{\cancel{12}}}{15} \times \frac{\overset{1}{\cancel{3}}}{\underset{4}{\cancel{4}}} = \frac{3}{5}$ $\frac{\overset{2}{\cancel{18}}}{\underset{24}{\cancel{24}}} \times \frac{\overset{1}{\cancel{6}}}{\underset{36}{\cancel{36}}} = \frac{2}{16}$ or $\frac{1}{8}$

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MATHEMATICS 6

Second Quarter
DLA No. 14

Type of Activity: Concept Development

Activity Title	:	Division of Fractions
Learning Objectives	:	Divide fractions quickly and accurately. Discover the easiest way of making the reciprocal of a fraction. Analyze and solve problems involving division of fractions. Takes pride in diverse Filipino cultural expressions, practices and traditions.
Reference	:	Math for Life 6 Mathematics in a Challenging World 6
Author:	:	Amelia Wright and Adela Villamayor Luzviminda Funa and Lourdes Dela Cruz

Concept Notes:

- To divide fractions:
 - make the reciprocal of the divisor
 - multiply the fractions

$$\text{Ex. } \frac{5}{6} \div \frac{2}{4} = \frac{5}{\cancel{6}^3} \times \frac{\cancel{4}^2}{2} = \frac{10}{6} \text{ or } 1\frac{4}{6} \text{ or } \boxed{1\frac{2}{3}}$$

- To divide mixed numbers:
 - change the mixed numbers to improper fractions
 - make the reciprocal of the divisor
 - multiply the fractions

$$\text{Ex. } 4\frac{3}{8} \div 2\frac{1}{3} = \frac{35}{8} \div \frac{7}{3} = \frac{\cancel{35}^5}{8} \times \frac{3}{\cancel{7}_1} = \frac{15}{8} \text{ or } \boxed{1\frac{7}{8}}$$

- Use cancellation if possible.
- Simplify your answer.

MATHEMATICS 6

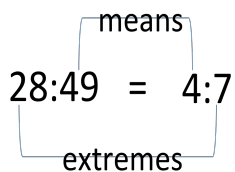
Second Quarter
DLA No. 16

Type of Activity: Concept Development

Activity Title	:	Ratio and Proportion
Learning Objective	:	Give the ratio and rate of two quantities. Express a ratio in lowest terms. Determine if two ratios form a proportion. Solve for the missing term in a proportion. Treats others without distinctions.
References	:	Math for Life 6 Math Connections 6
Author	:	Amelia Wright and Adela Villamayor Felipe De Guzman and Amelia De Vera

Concept Notes:

1. A ratio is a comparison of two quantities.
2. A rate is a ratio that compares different kinds of units.
3. Ratios are usually expressed in lowest term.
4. We can write ratios in different ways.
 - colon form 4: 5
 - word form 4 to 5
 - fraction form 4/5
5. Ratio is an ordered pair.
Ex. 25 girls and 16 boys number of boys to girls 16:25
6. A proportion is the statement of the equality of two ratios.
7. In a proportion the product of the means is equal to the product of the extremes.
Ex.



8. To find out if two ratios are proportion we can use cross multiplication.

Ex. **196** **196**

$$\frac{28}{49} = \frac{4}{7}$$

MATHEMATICS 6

Second Quarter
DLA No. 17

Type of Activity: Concept Development

Activity Title	:	Direct Proportion
Learning Objective	:	Identify direct proportion problems. Set up and solve direct proportion problems. Be responsible for all your actions.
References	:	Math for Life 6 Math Connections 6
Author	:	Amelia Wright and Adela Villamayor Felipe De Guzman and Amelia De Vera

Concept Notes:

1. In a direct proportion an increase in one variable is accompanied by a corresponding increase in the other.
 2. To set up a direct proportion, a sequence is followed. The second ratio should be in the same order as the first ratio.
 3. To solve for the missing term, use the cross product method.
- Ex. A pancake recipe calls for 6 tablespoons of milk for a serving of 4. How many servings will 9 tablespoons of milk make?

Tsbsp. of milk	servings
6	4
9	n

Proportion:

$$6 : 4 = 9 : n$$

$$4 \times 9 = 36$$

$$36 \div 6 = 6$$

$$n = 6$$

Labeled Answer: 9 tablespoons of milk will make 6 servings.

MATHEMATICS 6

Second Quarter
DLA No. 18

Type of Activity: Concept Development

Activity Title : Indirect Proportion
Learning Objective : Identify direct proportion problems.
Set up and solve direct proportion problems.
Shows positive values and attitudes in dealing with others.
References : Math for Life 6
Mathematics in a Challenging World 6
Author : Amelia Wright and Adela Villamayor
Luzviminda Funa and Lourdes Dela Cruz

Concept Notes:

1. In an indirect proportion or inverse proportion, as one term increases, the other decreases.
 2. To set up an indirect proportion, the first term corresponds to the fourth term and the third term corresponds to the second term.
- Ex. A housewife has sufficient charcoal to last 12 days provided she uses only 2 buckets a day. How long will the charcoal last if she uses 3 buckets a day?

Buckets of charcoal	days
2	12
3	n

Proportion: $2 \times 12 = 24$
 $2 : n = 3 : 12$ $24 \div 3 = 8$
 $n = 8$

Labeled Answer: The charcoal will only last for 8 days.

MATHEMATICS 6

Second Quarter
 DLA No. 19

Type of Activity: Concept Development

Activity Title : Partitive Proportion
 Learning Objective : Identify partitive proportion problems.
 Set up the proportion and solve partitive proportion problems.
 Upholds and respects the dignity and equality of all including those with special needs.
 References : Simplifying Mathematical Challenges 6
 Math Connections 6
 Author : Antonina Cruz and Aurea Dela Paz
 Felipe De Guzman and Amelia De Vera

Concept Notes:

1. In a partitive proportion, a number is divided into parts proportional to the given ratio.

Ex. The ratio of santol trees to mango trees to tamarind trees in an orchard is 5 : 2 : 8. If there are 1,245 trees in the orchard, how many mango trees are there?

$$\frac{5:2:8}{15} = \frac{S:M:T}{1,245}$$

$\frac{5}{15} = \frac{\text{Santol}}{1,245}$	$\frac{2}{15} = \frac{\text{Mango}}{1,245}$	$\frac{8}{15} = \frac{\text{Tamarind}}{1,245}$	Check:
$S = 5 \times 1,245$	$M = 2 \times 1,245$	$T = 8 \times 1,245$	415
$S = 6,225 \div 15$	$M = 2,490 \div 15$	$T = 9,960 \div 15$	166
$S = 415$	$M = 166$	$T = 664$	+ 664
			1,245

Labeled Answer: There are 166 mango trees.