Name: _____   Section: _____

Date : _____   Score: _____

PROPORTION

A Proportion is an equation that says that two or more ratios are equal.

Kinds of proportion:

1. Direct proportion is an equality of ratios where an increase/decrease in one quantity gives a directly the same increase/decrease in the second quantity.

e.g   a. 2 : 3 = N : 12   Step 1. Identify the Means: 3, N: Extremes: 2, 12

Step 2. Multiply the Means: 3 x N = 3N

Step 3. Multiply the Extremes: 2 x 12 = 24

Step 4. Equate the Means and the Extremes: 3N = 24

Step 5. Solve for the missing term: $\frac{3}{n} = \frac{24}{3}$ N = 8

2. Inverse proportion is an opposite of direct proportion where an increase/decrease in one quantity causes an opposite effect to the second quantity.

e.g.   a. 2 : 4 = 9 : N   Step 1. Identify the Means: 4, 9 : Extremes: 2, N

Step 2. Multiply the Means: 4 x 9 = 36

Step 3. Multiply the Extremes: 2 x N = 2N

Step 4. Equate the Means and the Extremes: 36 = 2N or 2N = 36

Step 5. Solve for the missing term: $\frac{2}{n} = \frac{36}{2}$ N = 18

3. Partitive proportion is a ratio of partition of a given whole where the sum of the ratio of partitions is equal to the given totality.

e.g   a. If 60 mangoes are divided into the ratio of 3 : 4 : N, what is N?

Step 1: Identify the known ratio : 3 , 4

Step 2: Multiply the known ratio : 3 x 4 = 12

Step 3: Make the product of the known ratios as the denominator of each ratio: $\frac{3}{12}$ and $\frac{4}{12}$

Step 4: Simplify each ratio: $\frac{3}{12} \to \frac{1}{4}$ and $\frac{4}{12} \to \frac{1}{3}$

Step 5: Get the exact value of each ratio from the given totality:

$\frac{1}{4}$ of 60 mangoes $= \frac{(1 \times 60)}{4} = 15$ mangoes $\frac{1}{3}$ of 60 mangoes $= \frac{1 \times 60}{3} = 20$ mangoes

Step 6: Add the exact value of known ratios: 15 + 20 = 35 mangoes

Step 7: Subtract the sum of the exact values of the known ratios from the given totality to solve for the missing term: 60 mangoes − 35 mangoes = 25 mangoes

Step 8: Write the new values in terms of ratio: 15 : 20 : 25

Step 9: Simplify your answer by dividing the Greatest Common Factor (GCF) to each ratio to solve for the missing term. GCF is 5

$\frac{15}{5} : \frac{20}{5} : \frac{25}{5} \to 3 : 4 : 5$ hence $N = 5$

Activity 1 (Monday)

DIRECTIONS: Put a check mark (/) if the given are equivalent ratios; if not, place a cross mark (X).

_____ 1. 5 : 15 = 3 : 9   _____ 2. 10 : 10 = 90 : 91

_____ 3. 25 : 50 = 1 : 2   _____ 4. 12 : 4 = 300 : 100

_____ 5. 72 : 16 = 9 : 12   _____ 6. 20 : 12 = 5 : 3

_____ 7. 4 : 15 = 12 : 15   _____ 8. 4 : 7 = 12 : 20

_____ 9. 2 : 3 = 36 : 34   _____ 10. 15 : 2 = 45 : 6

Activity 2 (Tuesday)

DIRECTIONS : Fill in the blank with the number that will complete the proportion.

1. 3 : _____ = 9 : 30   2. 2 : 7 = _____ : 28

3. 4 : 7 = _____ : 28   4. $\frac{2}{9} = \frac{}{81}$

5. _____ : 25 = 4 : 10

6. Jason paid ₱1, 920.00 for the three PPE packages for COVID-19 Frontliners. His brother Josh wanted to buy 8 PPE packages. How much would Josh pay? _____

7. Mr. Wilfredo dela Cruz would like to divide his land to his 3 children in the ratio 2: 3 : 4. His land has a total land area of 10, 989 sq. meter, how much would each child receive? _____

Activity 3 (Wednesday)

DIRECTIONS : Find the missing term using the steps.

1. $2 : 5 = N : 10$

2. $10 : N = 5 : 6$

3. $2 : 4 = 6 : N$

4. $\frac{2}{7} = \frac{n}{28}$

5. $\frac{n}{4} = \frac{5}{10}$

6. $\frac{n}{20} = \frac{4}{5}$

7. $\frac{12}{35} = \frac{12}{n}$

8. $\frac{5}{9} = n/90$

9. Five face mask cost ₱20.00. Ten face mask cost _____.

10 . There are 10 families to cater 3 sacks of rice. There are 12 sacks of rice for _____ families.

Activity 4 (Thursday)

DIRECTIONS : Solve the following problems below using the steps in solving problems involving proportions. Encircle the letter of the correct answer.

1. A package promo allows 3 persons to ride on a zip line for ₱750. How much will 12 friends pay to ride on a zip line?
A. ₱2000   B. ₱3000   C. ₱4000   D. ₱5000

2. You cut a 3 m string into three parts using the ratio 1 : 2 : 3. How long will be the shortest part?
A. ½ m   B. 1 m   C. 1½ m   D. 2 m

3. Morie wants to donate his 200 books to three Kindergarten Schools in a 1 : 4 : 5 ratio. How many books will each Kindergarten School receive?
A. 20:80:100   B. 30:40:50   C. 40:50:60   D. 40:50:100

4. Jason paid ₱1, 680.00 for the three "Bayanihan" painting. His brother Joshua wanted to buy 8 "Bayanihan" paintings. How much would Joshua pay?
A. ₱2240   B. ₱3340   C. ₱4480   D. ₱5500

5. Michael wanted to go to his brother's house which is 24 km from his house. If he drives his car with a speed of 60 kph, he will be there in 24 minutes. If he makes his speed slower to 40 kph, how long would Michael take to reach his brother's house?
A. 24 min.   B. 28 min.   C. 32 min.   D. 36 min

6. If three durian seedlings cost ₱20.00. How much is the cost for twelve durian seedlings?
A. ₱80   B. ₱100   C. ₱120   D. ₱140 27

7. During this pandemic the bus fare for an 80 km trip is ₱65.00. How much is the bus fare for a 320 km trip?
A. ₱260   B. ₱360   C. ₱460   D. ₱560

8. If 6 women can trim a flower garden in 2 days. How long will 3 women do it?
A. 4 days   B. 5 days   C. 9 days   D. 20 days

9. A sack of food is enough to cater 10 persons for 3 days. How long will it last for 5 persons?
A. 4.5 days   B. 5 days   C. 5.5 days   D. 6 days

10.It takes 5 sales representative for 6 days to sell 5,000 boxes of face mask. If 2 more sales representative are added, how long will it take them?
A. 2 days   B. 3 days   C. 4 days   D. 5 days

Quarter 2, Week 2 Competency: finds a missing term in a proportion (direct, inverse, and partitive).
            Code: M6NS-IIb-13
            solves problems involving direct proportion, partitive proportion, and inverse proportion
            in different contexts such as distance, rate, and time using appropriate strategies and tools. **Code** : M6NS-IIc-134