LEARNING AS ONE NATION
Expanded Project

Math 10_23

JHS LEARNING ACTIVITY

Name: _____ **Grade/Score:** _____
Grade and Section: _____ **Date:** _____

Subject *(Check or choose from below.)*

- ☐ Religion/Values Education
- ☐ Natural Sciences
- ☐ Araling Panlipunan
- ☐ Filipino
- ☐ English
- ☐ Math
- ☐ TLE / ICT
- ☐ MAPEH
- ☐ HGP _____

Type of Activity *(Check or choose from below.)*

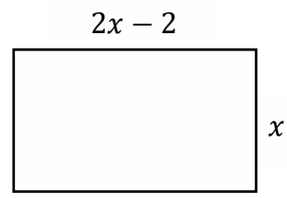
- ☐ Concept Notes
- ☐ Skills: Exercise / Drill
- ☐ Performance Task
- ☐ Illustration
- ☐ Formal Theme
- ☐ Informal Theme
- ☐ Others: _____

Activity Title: Exercises on Solving Problems Involving Polynomials and Polynomial Equations

Learning Target: To solve problems involving polynomials and polynomial equations.

References: *(Author, Title, Pages)*
https://www.youtube.com/watch?v=6zvw2K-XJT4
V. J. A. Dublin, CVIF Learning Activities

Example: The length of a rectangle is 2 meters less than twice the width. If the area is 60 m^2, find the perimeter.



Given: The width is unknown, so we denote it as x .
The length is 2 m less than twice the width $= 2(width) - 2 = 2x - 2$
Area of the rectangle $=$ 60 m^2

Solution:

$$A = (length)(width)$$
$$60 = (2x-2)(x)$$
$$60 = 2x^2 - 2x$$
$$60 - 60 = 2x^2 - 2x - 60$$
$$0 = 2x^2 - 2x - 60$$
$$\frac{0}{2} = \frac{2x^2 - 2x - 60}{2}$$
$$0 = x^2 - x - 30$$

Factor the polynomial equation
$x^2 - x - 30 = 0$
$(x+5)(x-6) = 0$
So we have the roots: $x = -5$ and $x = 6$.
We will use $x = 6$ as our width because we cannot use a negative number as width.
Thus, Width $= x = 6$
Length$= 2x - 2 = 2(6) - 2 = 10$
Therefore, Perimeter $= 2L + 2W$
$= 2(10) + 2(6)$
$= \mathbf{32\ m}$.

Exercise: Solve the following problem and give what is asked. Show your neat step-by-step solution and computations. Draw and label a diagram before solving.

A ladder leans against a vertical wall in a way that it forms a right triangle. The horizontal distance of the foot of the ladder from the wall is $\sqrt{8}$ feet. The ladder is 1 foot longer than twice the height at which the ladder touches the wall. Find the length of the ladder. (*Hint: Recall the Pythagorean theorem giving the relation between the lengths of the sides of a right triangle.*)