LEARNING AS ONE NATION
Expanded Project

Math 10_16

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: Synthetic Division of Polynomials

Learning Target: To divide polynomials using synthetic division.

References: *(Author, Title, Pages)*
1) Julieta Bernabe, Advanced Algebra, pp. 72-73
2) V.B. Galbizo and M.V.Carpio-Bernido, CVIF Learning Activities

Synthetic Division is a process of division for polynomials in one variable where the divisor is of the form $(x - c)$.

Example: Divide the polynomial $2x^3 - 9x^2 + 13x - 12$ by $(x - 3)$.

Solution:

First, write the coefficients of the power of x in the dividend as 2, -9, 13, and -12. Write the value of $c = 3$ to the left of the coefficients.

3	2	-9	13	-12
		6	-9	12
	2	-3	4	0

Step 1: Bring down 2. Multiply by **c** which, in this case, is equal to 3.
Step 2: $2(\mathbf{3}) = 6$; then add $-9 + 6 = -3$
Step 3: $-3(\mathbf{3}) = -9$; then add $13 + (-9) = 4$
Step 4: $4(\mathbf{3}) = 12$; then add $-12 + 12 = 0$

The numbers $2, -3$, and 4 in the bottom row are the coefficients of the quotient in order of descending powers of x. We have, $2x^2 - 3x + 4$. Thus,

$$\frac{2x^3 - 9x^2 + 13x - 12}{(x - 3)} = 2x^2 - 3x + 4.$$

Exercise:

1. Check the answer above by multiplying $(2x^2 - 3x + 4)$ by $(x - 3)$. See if you get the original dividend.
2. Use synthetic division to find the quotient and the remainder of the following polynomials.
   a) Divide $(3x^3 - 13x^2 + 8x - 16)$ by $(x - 4)$.
   b) Divide $(2x^3 - x^2 + 3x + 12)$ by $(x - 2)$.