

(A) Lesson Context

BIG PICTURE of this UNIT:	<ul style="list-style-type: none"> • What is a Polynomial and how do they look? • What are the attributes of a Polynomial? • How do I work with Polynomials? 		
CONTEXT of this LESSON:	<p>Where we've been</p> <p>We have discussed the basic appearance of graphs of polynomial functions</p>	<p>Where we are</p> <p>How can we use algebraic skills & process to begin an analysis of polynomials when we DO NOT have a graphic representation with which to work?</p>	<p>Where we are heading</p> <p>What are the key attributes of a polynomial and how do these affect the shape?</p>

(B) Lesson Objectives:

- Understand the connection between division of numbers and division of polynomials.
- Simply the “long division” process and work with the method of synthetic division in order divide polynomials.

(C) Opening Exercises: The Process of Long Division

(a) Divide 3825 by 51

(TERMS to highlight: divisor, quotient, remainder)

(b) Divide 41,764 by 32

(TERMS to highlight: divisor, quotient, remainder)

(D) Extension of Ideas: Long Division of Polynomials(a) Divide $x^2 + 3x - 28$ by $x + 5$ (b) Divide $x^3 - 7x + 8$ by $x - 2$ (c) Divide $2x^2 - 5x - 3$ by $x - 4$ **(E) Simplify Algorithms: Synthetic Division:** (And compare the 2 processes)(a) Divide $x^2 + 3x - 28$ by $x + 5$ (b) Divide $x^3 - 7x + 8$ by $x - 2$ (c) Divide $2x^2 - 5x - 3$ by $x - 4$

(F) Further Practice with Synthetic Division

(a) Divide $x^3 - 7x - 6$ by $x + 1$ → conclusion?

(b) Divide $4x^3 - 5x^2 + 3x - 7$ by $x - 2$

Point to be made: different ways to express your final result

(c) Divide $13x - 2x^3 + x^4 - 6$ by $x + 2$ → conclusion?

(d) Divide $12x^3 + 2x^2 + 11x + 16$ by $3x + 2$ → what's different and how do we deal with it?

(G) Further Practice

From Nelson 12, Exercise 1.4, page 42, Q4,8,9 (HL challenge) & 10,11