Math 12 Pre-Calculus LG 5

POLYNOMIAL FUNCTIONS

INTRODUCTION:

You can model many situations using polynomial functions. Check out pages 104-105.

LEARNING GUIDE EXPECTATIONS:

On the completion of this learning guide you will be able to:

1) Identify and analyze polynomial functions.
2) Divide a polynomial by a binomial.
3) Use and understand the remainder theorem.
4) Factor polynomials.
5) Use and understand the factor theorem.
6) Sketch the graph of a polynomial without technology.
7) Model and solve problems involving polynomial functions.

EVALUATION:

Write the LG 5 assessment quiz in the test centre. NOTE: GRAPHING CALCULATORS ARE NOT PERMITTED ON THE LG 5 ASSESSMENT QUIZ. A SCIENTIFIC CALCULATOR IS OKAY.

RESOURCES NEEDED:

Math 12 Pre-Calc Text

THSS Math 12 Pre-Calc Learning Guides.

www.thssmath.com

LEARNING ACTIVITIES:

Expectation #1: Identify and analyze polynomial functions.

1. Watch and take notes on instructional video on Characteristics of Polynomial Functions.
2. In the textbook, complete the Investigate Graphs of Polynomial Functions #1 – 8 on pages 106 – 107.
3. Read Link the Ideas on page 107.

4. Work through Example 1 on page 108 and complete the "Your Turn" questions on page 108.

5. Read Characteristics of Polynomial Functions on pages 108 – 109 and Key Ideas on page 113.


6. In your math journal, describe the properties of polynomial functions. Include the effects of the leading coefficient, the domain, range, number of x intercepts and y intercepts.


7. Work through Examples 2 and 3 on pages 110 – 112 and complete the corresponding Your Turn questions.

8. In the textbook, complete pages 114 - 115 #1 – 7, 9.


Expectation #2: Divide a polynomial by a binomial.


Expectation #3: Use and understand the remainder theorem.


1. Watch and take notes on instructional video on Dividing Polynomials by a Binomial and the Remainder Theorem.


2. Read Link the Ideas on page 120. Work through Examples 1-4 on pages 120 - 123 and complete the corresponding Your Turn questions.


3. Read Key Ideas on page 123. In your journal, describe how to divide polynomials by a binomial. Describe what the remainder theorem states.


4. In the textbook, complete pages 124-125 #1 – 12, 14.


Expectation #4: Factor polynomials.


Expectation #5: Use and understand the factor theorem.


1. Watch and take notes on instructional video on the Factor Theorem.


2. Read Link the Ideas on page 127. Work through Examples 1-4 on pages 128 - 132 and complete the corresponding Your Turn questions.


3. Read Key Ideas on page 133. In your journal, explain the factor theorem and the integral zero theorem. Explain using an example how you can factor a polynomial with these theorems.


5. In the textbook, complete pages 133-135 #1-10.

Expectation #6: Sketch the graph of a polynomial without technology.

Expectation #7: Model and solve problems involving polynomial functions.

1. Watch and take notes on instructional video on Graphs of Polynomial Functions.

2. Read Link the Ideas on page 138. Work through Examples 1-4 on pages 138-146 and complete the corresponding Your Turn questions.

3. Read Key Ideas on page 147. In your journal, describe the properties of polynomial functions that you have learned in this section.

5. In the textbook, complete pages 147-152 #1-10, 12, 14, C3.

REVIEW AND CHALLENGE

1. In the textbook, complete Chapter 3 Review pages 153-154 #1 – 15
2. Complete Chapter 2 Practice Test pages 155-156 #1 – 10.

Key Terms: polynomial function, end behaviour, degree of the polynomial, divisor, quotient, remainder, synthetic division, remainder theorem, factor theorem, integral zero theorem, multiplicity of a zero.

PRACTICE QUIZZES

Practice quiz #1
Practice quiz #2
Practice quiz #3
Practice quiz #4

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