* You must complete on your own using book to get any value out of this activity.
—Mr. B.

Advanced Algebra Name: _____

I'm working with: _____

Polynomial Functions Summary Activity

Directions: Work with a partner. Use the text, pages 346-349, to summarize valuable information. You may use the online book if you were absent.

Study example <u>Example 1</u> on page 346 and 347 to help you answer the questions.

- <u>Polynomial in One Variable</u>: a polynomial that has one variable and NO negative exponents.
  - Example: $3x^4 - 6x^3 - 2x^2 + 5x + 7$
    - Degree = Leading Coefficient =
  - Give two Non-Examples:

<u>Examples</u>: State the degree and leading coefficient of each polynomial in one variable. If it is not a polynomial in one variable, explain why.

1. $7x^3 - 4x^2 + x$
2. $6a^3 - 4a^2 + ab^2$
3. $3x^2 + 4x - 2x^{-1}$
4. $9y - 3y^2 + y^4$

Study example <u>Example 2</u> on page 347 to help you answer the question.

- <u>Evaluating Polynomial Functions:</u>

5. Rings of a honeycomb function: $f(r) = 3r^2 - 3r + 1$
Find the total number of hexagons in a honeycomb with 20 rings.

Study example <u>Example 3</u> on page 348 to help you answer the question.

6. Find $b(x^2) - 3 \cdot b(x)$ if $b(m) = 2m^2 + m - 1$

Study the graphs on page 348 and to help you answer the following questions:

- Graphs of Polynomial Functions:

7. How are odd-degree graphs different from even-degree graphs?

8. How does the degree compare to the maximum number of real zeros (x-intercepts/roots)?

9. Without looking at the next page, describe the end behavior of the Quintic function!

Study the chart on page 349 to help you answer the following questions:

- End Behavior of a Polynomial Function:

10. Sketch a graph of a quintic function with a positive leading coefficient. Describe its end behavior.

11. Sketch a graph of a quintic function with a negative leading coefficient. Describe its end behavior.

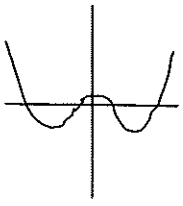
Study Example 4 on page 349 to help you answer the following questions:

For each graph,

a) describe the end behavior

b) determine whether it represents an odd- or even-degree polynomial function

c) state the number of real zeros

12. 

13.