

## Topic 3.1: Polynomial Functions

Essential Question:

*How do the key features of a polynomial function help you sketch its graph?*

### Explore and Reason

Please complete online.

### CONCEPT Summary

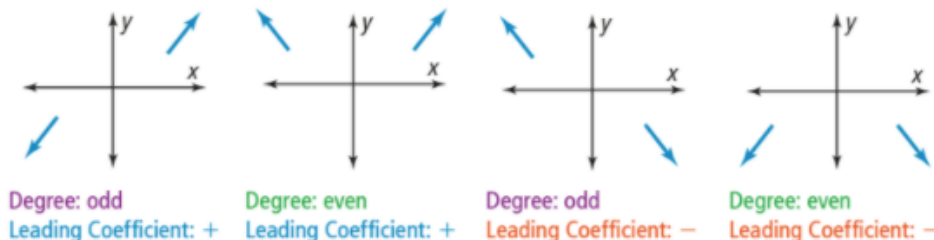
Q: Explain the importance of what the degree and the leading coefficient describe about the graph of a polynomial function.

### Graphing Polynomial Functions

**WORDS** A polynomial function is a function whose rule is either a monomial or a sum of monomials.

**KEY FEATURES** Turning points – function values change from increasing to decreasing, or vice-versa  
Relative minimum – changes from increasing to decreasing  
Relative maximum – changes from decreasing to increasing

**GRAPHS** End behavior depends on the degree of the polynomial and the sign of its leading coefficient.



Notes:

## Examples & Questions

### Examples 1

Q: Why is the order of the terms important when writing a polynomial.

### Examples 2

Q: How does each feature describe the end behavior of the graphs?

### Examples 3

Q: What can be determined from looking at the polynomial function before graphing?

Q: How is the table helpful when sketching the graph of a polynomial function? What points are important?

### Examples 4

Q: How do you recognize the zeros of the function from the verbal descriptions?

Q: How do these verbal descriptions relate to the degree and leading coefficient of a polynomial function?

### Examples 5

Q: Initially, what can you interpret about the end behavior of the function by looking at the written model?

Q: What is important to consider when real-world context is represented by a polynomial model?

## Practice and Problem Solving

Complete MathXL for School: Additional Practice (online)

Complete MathXL for School: Enrichment (online)

Challenge: #14, 15, 28, 29, 32 – key will be posted in Power School Learning.

## Lesson Quiz 2.4