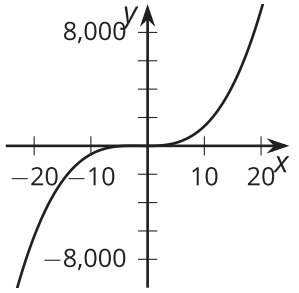
Unit 2 Lesson 8: End Behavior (Part 1)

1 Notice and Wonder: A Different View (Warm up)

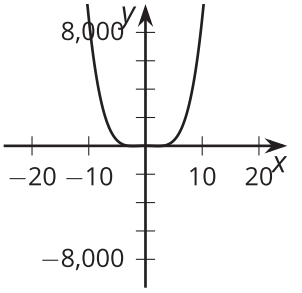
Student Task Statement

What do you notice? What do you wonder?

$y = x^3 + 4x^2 - x - 4$



$y = x^4 - 10x^2 + 9$



2 Polynomial End Behavior

Student Task Statement

1. For your assigned polynomial, complete the column for the different values of x. Discuss with your group what you notice.

x	$y = x^2 + 1$	$y = x^3 + 1$	$y = x^4 + 1$	$y = x^5 + 1$
-1000				
-100				
-10				
-1				
1				
10				
100				
1000				

2. Sketch what you think the **end behavior** of your polynomial looks like, then check your work using graphing technology.

3 Two Polynomial Equations

Student Task Statement

Consider the polynomial $y = 2x^5 - 5x^4 - 30x^3 + 5x^2 + 88x + 60$.

1. Identify the degree of the polynomial.
2. Which of the 6 terms, $2x^5$, $5x^4$, $30x^3$, $5x^2$, $88x$, or 60, is greatest when:
   a. $x = 0$
   b. $x = 1$
   c. $x = 3$
   d. $x = 5$
3. Describe the end behavior of the polynomial.