

End Behavior of Polynomial Functions

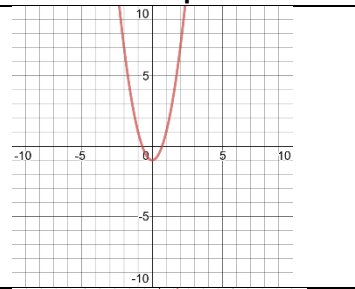
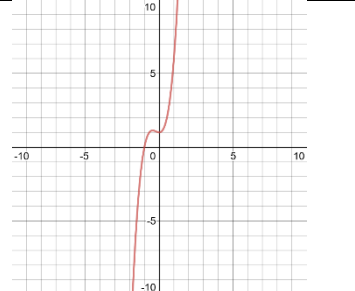
Vocabulary

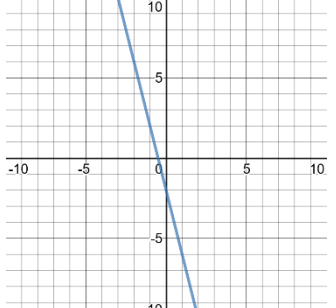
Polynomial Function	
Degree of a Polynomial	
Leading Coefficient	
End Behavior of a Polynomial	

Examples: Fill in the table.

	Polynomial	Standard Form	Degree	Leading Coefficient	Number of Terms
1	$-4x + 9 + 2x^2$				
2	$2x - 3x^4 + 6 - 5x^3$				
3	$x^5 + 2x^6 - 3x^4 - 8x + 4x^3$				

End Behavior: Investigate the following graphs.

Graph	Equation	Leading Coefficient	Right End Behavior
	$y = 2x^2 - 1$		As $x \rightarrow \infty, y \rightarrow \underline{\hspace{2cm}}$
	$y = 3x^3 + 2x^2 + 1$		As $x \rightarrow \infty, y \rightarrow \underline{\hspace{2cm}}$

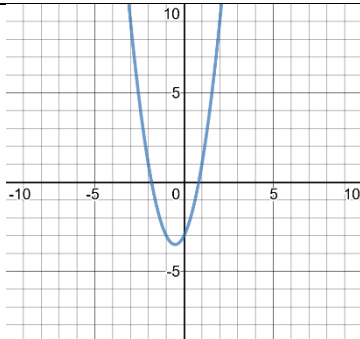
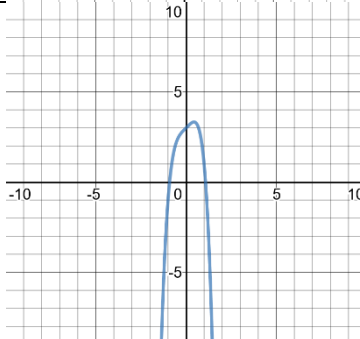
Graph	Equation	Leading Coefficient	Right End Behavior
	$y = -2x - 1$		As $x \rightarrow \infty, y \rightarrow \underline{\hspace{2cm}}$

Right End Behavior

Right End Behavior is determined by the _____.

If the _____ is positive, right end behavior is: As $x \rightarrow \infty, y \rightarrow \underline{\hspace{2cm}}$

If the _____ is negative, right end behavior is: As $x \rightarrow \infty, y \rightarrow \underline{\hspace{2cm}}$

Graph	Equation	Degree	Compare End Behaviors
	$y = 2x^2 + 2x - 3$		
	$y = -3x^4 + x + 3$		

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

Left End Behavior

1. Determine right end behavior first, by looking at the _____.

2. Determine if left end behavior is the same or opposite by looking at the _____.