Algebra 2

2-04 Graph Polynomial Functions (4.1, 4.8)

Polynomial in One Variable

- Function that has _____ variable and there are powers of that variable and all the powers are _____.

$4x^3 + 2x^2 + 2x + 5$	$100x^{1234} - 25x^{345} + 2x + 1$
$\frac{2}{x}$	$3xy^2$

Degree

- _____ power of the variable

What is the degree? $4x^3 + 2x^2 + 2x + 5$

Types of Polynomial Functions

Degree	Type	Example	Graph
0	_____	$y = 2$	
1	_____	$y = 2x + 1$	
2	_____	$y = 2x^2 + x - 1$	
3	_____	$y = 2x^3 + x^2 + x - 1$	
4	_____	$y = 2x^4 + 2x^2 - 1$	

End Behavior

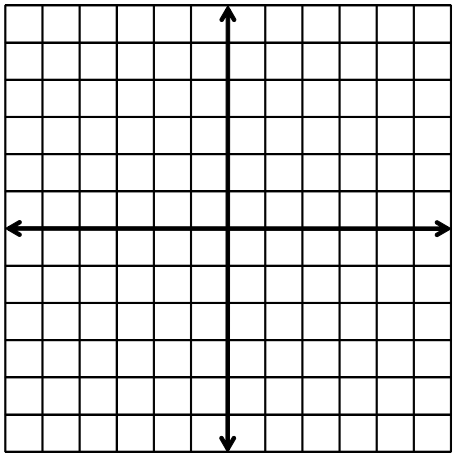
- Polynomial functions always go towards _____ or _____ at either _____ of the graph

	Leading Coefficient +	Leading Coefficient -
Even Degree		
Odd Degree		

Graphing polynomial functions

1. Make a _____
2. _____ the points
3. Make sure the graph matches the appropriate _____

Graph $f(x) = x^3 + 2x - 4$



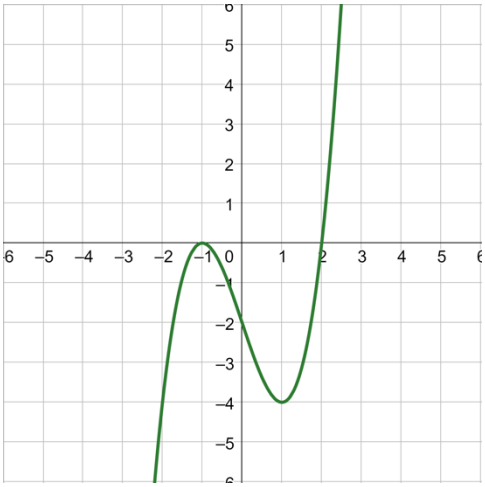
x-intercepts

- Points where the graph crosses the _____

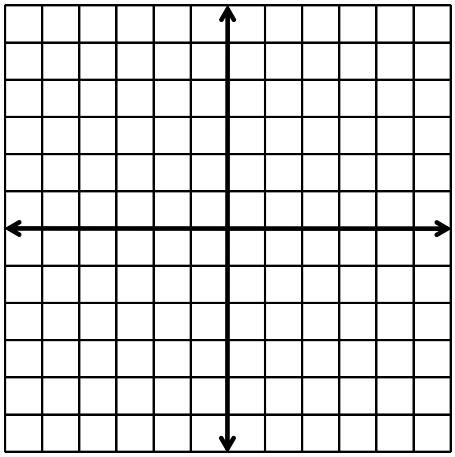
Turning Points

- Local _____ and _____ (turn from going up to down or down to up)
- The graph of every polynomial function of degree *n* can have at most _____ turning points.
- _____ lets you find the turning points easily.

What are the *x*-intercepts and turning points?



Graph $f(x) = x^3 - 2x^2 - x + 2$ and estimate the *x*-intercepts and turning points.



158 #1, 3, 7, 19, 21, 23, 25, 29, 31; 210 #1, 3, 7, 23, 25, 27, Mixed Review = 20