Precalculus

2-03 Polynomial Equations

Polynomial Function

$$f(x) = a_n x^n + a_{n-1}x^{n-1} + \cdots + a_2 x^2 + a_1 x + a_0$$

- a_n are _____
- $a_n x^n$ are _____
- a_0 is _____ term
- Degree is _____ exponent
- Leading coefficient is coefficient of term with _____ exponent
- Graphs are _____, _____, _____ turns

End Behavior

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

	Leading Coefficient +	Leading Coefficient –
Even Degree		
Odd Degree		

What is the end behavior of $f(x) = \frac{1}{3}x^3 + 5x$?

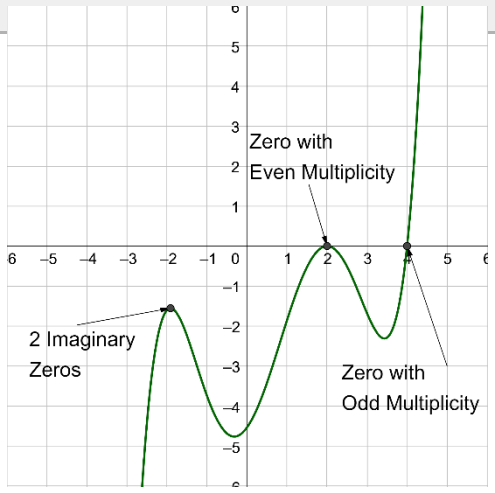
Zeros

If $x = a$ is a zero of $f(x)$

- $x = a$ is a solution to _____
- $(a,\ 0)$ is _____
- $(x - a)$ is a _____ of $f(x)$

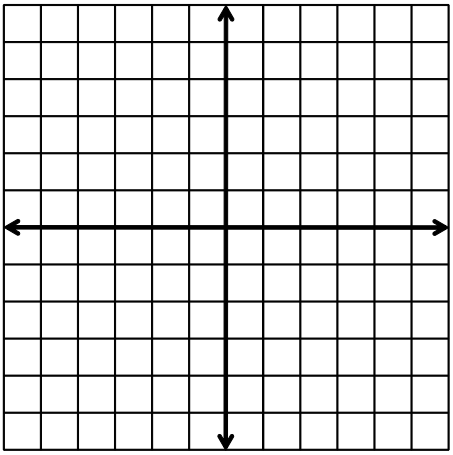
Let $f(x)$ have degree n

- At most n _____ (can be repeated)
- At most $n - 1$ _____ points



For $g(t) = t^5 - 6t^3 + 9t$

a. Find all zeros



b. Find multiplicity of zeros

c. Graph

Find the intercepts of $f(x) = x(x+2)(x-3)$

Determine the least possible degree of the polynomial function shown.