

October 9, 2017

Polynomials

- ① Monomial:  $5, x, 5x, -4x^2$   
"one" term
- ② Binomial:  $(x-4), (x+3),$   
"two" terms  
linked by addition  
 $(-5x^2 + 3x^2)$
- ③ Trinomial:  $x^2 - x - 12$   
"three" terms  
linked
- ④ Polynomial:  $6x^7 - x^5 + 2x^4 - 3x^2 + 2$   
"many" terms  
linked  
Degree: 7

Oct 9-8:04 AM

All Polynomials have a Degree (number of solutions)

General Form:  $P(x) = a_n x^n + a_{n-1} x^{n-1} + a_{n-2} x^{n-2} + \dots + a_n + a_0$

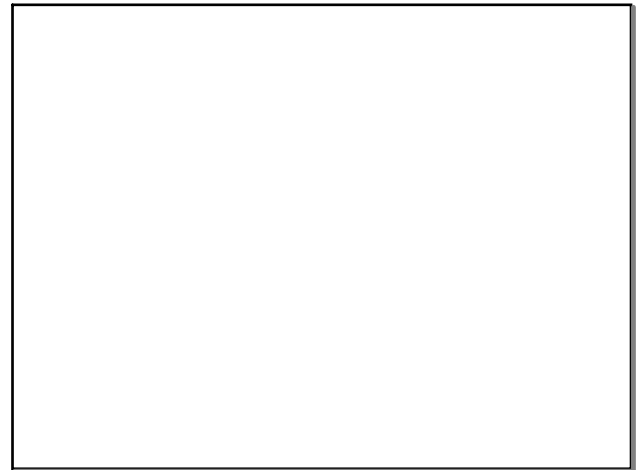
Annotations:  
 -  $a_n$ : leading Coefficient  
 -  $n$ : leading Exponent (Degree)

Oct 9-8:23 AM

what is a solution to a polynomial?

$f(x) = x^2 - x - 12$   
 $0 = (x-4)(x+3)$   
 $x = 4 \text{ \& } x = -3$  Solutions  
 "Real"

Oct 9-8:30 AM



Oct 9-8:36 AM

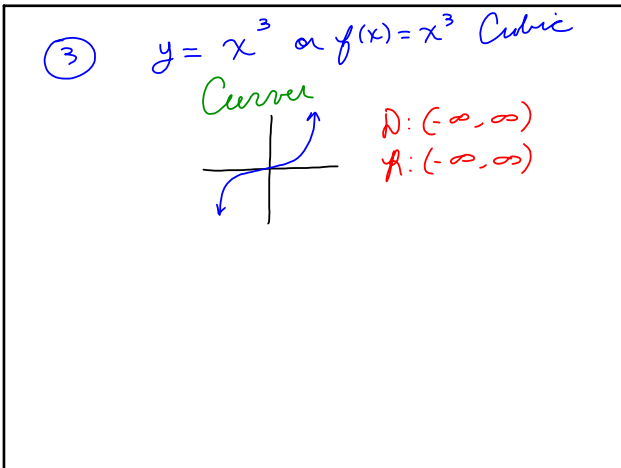
Basic Functions

- ①  $y = x$  or  $f(x) = x$  Parent (Linear)  
 Line  
 $g(x) = 3x - 2$   
 D:  $(-\infty, \infty)$   
 R:  $(-\infty, \infty)$

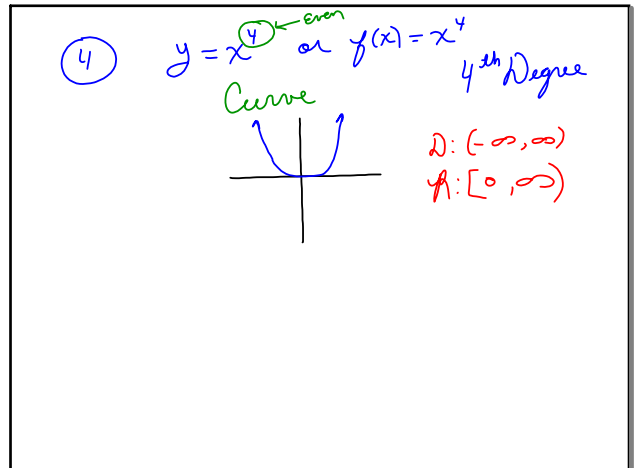
Oct 9-8:36 AM

- ②  $y = x^2$  or  $f(x) = x^2$  Quadratic  
 Parabola  $\rightarrow$  Curve  
  
 D:  $(-\infty, \infty)$   
 R:  $[0, \infty)$   
 $g(x) = x^2 - x - 12$

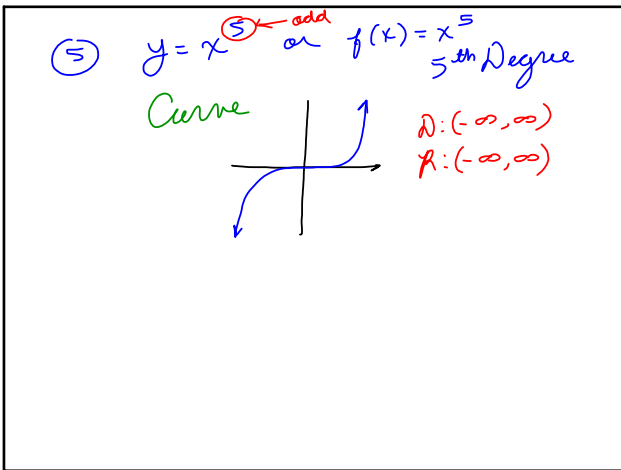
Oct 9-8:39 AM



Oct 9-8:41 AM



Oct 9-8:43 AM



Oct 9-8:46 AM