

Your Name

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Polynomial vocab

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Notes

Let's review a couple of
vocab words and concepts

Factor

integer numbers or variables that make up a term by pairing up with another factor using multiplication, thus each are smaller

12: 1, 2, 3, 4, 6, 12 done

There are factors that lead up to and create civil wars.

Multiple

more of a term, multiply the term by numbers, thus each are bigger

12: 12, 24, 36, 48, ...

There have been multiple civil wars throughout the world.

Prime Number

A whole number, greater than 1, whose only factors are 1 and itself

ex. 41 : 1, 41
only factors

1 is not prime
start at 2

Composite Number

A whole number, greater than 1, that has more than two factors

ex. 90 : 1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45, 90
no more numbers in between for factors

Prime Factorization

A whole number expressed as a product of prime factors

$$\begin{array}{r} 35 \\ 5 \overline{) 175} \\ \underline{15} \\ 25 \\ \underline{25} \\ 0 \end{array}$$

ex. 175 : 1, 5, 7, 25, 35, 175

(multiplication)



$$\begin{array}{r} 35 \\ 25 \\ \underline{25} \\ 10 \\ \underline{10} \\ 0 \end{array}$$

ex. 144

Monomial/
Term

the product of integers and variables possibly with exponents (no addition or subtraction)
ex. $32x^2$

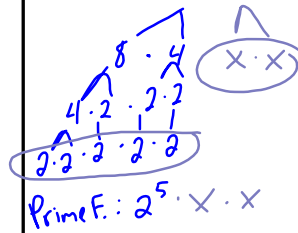
Degree of
a term

the sum of the term's variable exponents
ex. $32x^2$ Degree: 2
ex. $49a^3b^2$ Degree: 5
 $3+2$

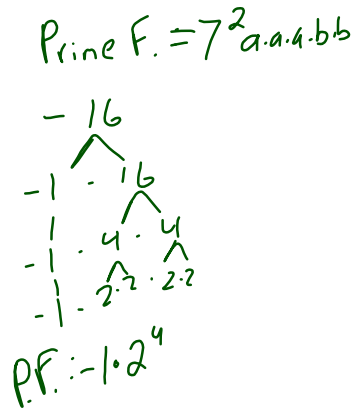
Factoring a Monomial

The product of the prime numbers and expanded form of the variables

ex. $32x^2$



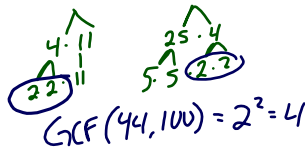
ex. $49a^3b^2$



Finding the GCF of a set of Monomials

Finding the GCF of the integer coefficients and the highest power of each variable that all the monomials share

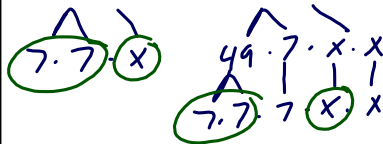
44 and 100



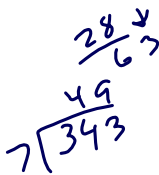
80 and 440

Start with smaller
what's the next biggest factor?
40, 80
1, 2
 $GCF(80, 440) = 40$

$49x$ and $343x^2$



$GCF(49x, 343x^2)$
both share: $7^2 \cdot x$
 $49x$



$6x^2y$, $9x^2y^3$, $18x^2y^2$

GCF: $3x^2y$

27, 32

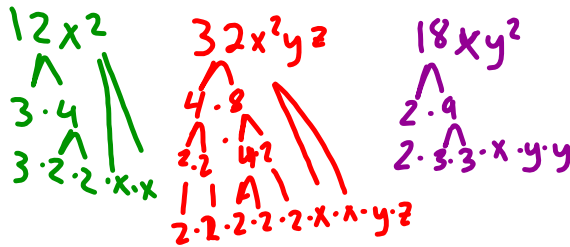
-64 and -80

$4a^7b$, $28ab$

$96y$, $12x$, $8y$

$12x^2$, $32x^2yz$, $18xy^2$

$18a^4b^2$, $36a^3b$



Polynomial The addition or subtraction of at least two monomial terms

of Terms

Binomial 2 monomials 2 Terms
Trinomial 3 monomials 3 Terms
4 term polynomial 4 terms
n term polynomial n amount of terms

ex. $4x - 7$
ex. $3x^3 - 27$
ex. $7x^2 - 3x + 1$
ex. $-5x^7 + 4x^5 - 2x$
ex. $-5x^3 - 8x^2 + 2x - 6$
 $x^{n+1} + x^n + x^3 \dots$

Degree of a Polynomial the biggest degree of any of the polynomial's terms

ex. $3x^2 - 6x + 1x^0$ D: 2 D: 1 D: 0
Polynomial has degree 2
ex. $4a^3b^2 + b^3 - 5ab + 9a$ D: 5 D: 3 D: 2 D: 1
Poly. Degree is 5

Linear
Degree 1
 $3x^1 - 2 - 50x$

Quadratic
Degree 2
 $3x^2 - 2$
 $4x^2 - 7x + 50$

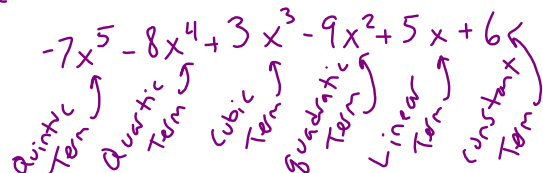
Cubic
Degree 3
 $5x^3 - 7x^1$
missing: quadratic term
constant term
 x^0

Quartic
Degree 4
 $x^4 - 3x^3 - 5x$

Quintic
Degree 5

6th degree Polynomial
Degree 6

nth degree Polynomial
 x^n



Standard Form

terms in order of degree highest to lowest
 $3x + 5x^2 \rightarrow 5x^2 + 3x$
 # in front of highest degree term

Lead Coefficient

$3x^4 + 7x^2 - 49x^0 \rightarrow L.C. = 3$

Even Degree Polynomials

if degree is even
 symmetrical end behavior
 x^2 or x^4

Odd Degree Polynomials

if degree is odd
 opposite end behaviors
 x^1 , x^3 , x^5 , x^7

Polynomial Equations

Solutions/Roots/Zeros of an equation:

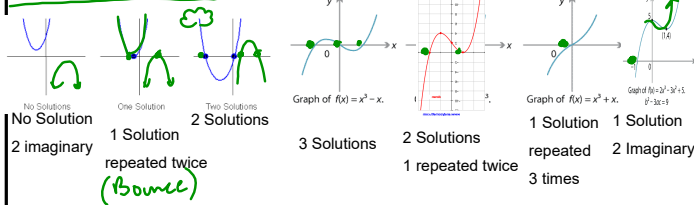
the x intercepts of the function, where y is 0

SO... **factoring finds the x values that produce 0 for y** (Include in your x-y table of points)

$(x) = 0$

$y = ax^2 + bx + c$

$y = ax^3 + bx^2 + cx + d$



$y = ax^4 + bx^3 + cx^2 + dx + e$

