Your Name

Mrs. Theo

1/25/2021

Identifying Polynomial Parts

Vocab

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

3x: 3 and x

(x + 2)(x - 7): (x+2) and (x-7)

Civil wars: economic interests, cultural values, the federal gov. control

factors

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

12: 12, 24, 36, 48....
1st multiple, 2nd multiple 12·2, 3rd 12·3, 12·4

3x: 3x, 6x, 9x, 12x, 15x, ...
3·1·x, 3·2·x, 3·3·x, 3·4·x

Civil Wars: English Civil War, American Union/Confederate, Israel/Palestine Conflict, Colombia Civil War, Philippines Civil War, North/South Korea, Indonesia, French Revolution, Mexican Revolution, Russian Civil War...

multiple civil wars

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 inbetween for factors

Trick 2 : even cut in half

Trick 3 : add digits if sum is divisible by 3

$9+0=\frac{9}{3}=3$ ✓

Trick 4 : cut in half twice

Trick 5 : ends in 0 or 5

Trick 6 : if both 2 and 3 are factors

Trick 8 : cut in half 3 times

Trick 9 : add digits, if sum divisible by 9

$9+0=\frac{9}{9}=1$ ✓

Trick 10 : ends in 0

Monomial/ Term

the product of rationals and variables possibly with exponents (no addition or subtraction)

ex. $32x^2$ Yes

$32+x^2$ No

Degree of a term

the sum of the term's variable exponents

ex. $32x^{(2)}$

Degree is 2

ex. $49a^{(3)}b^{(2)}$

3+2

Degree is 5

Standard Form

terms in order of Degree highest to lowest

ex. $3x - 5x^2 \rightarrow -5x^2 + 3x$

Lead Coefficient

Number in front of highest degree term

ex. $3x^4 + 7x^2 - 49x^0$ ex. $5 - 13x^7 + 100x$

D: 4 D: 2 D: 0 L.C. : -13

Lead coefficient is: 3

*Not often the biggest #

Constant

Number in front of zero degree term, (the term without a variable)

ex. $3x^4 + 7x^2 - 49$ ex. $5 - 13x^7 + 100x$

Constant is -49 C: 5

Polynomial

The addition or subtraction of at least two monomial terms

Binomial	Trinomial	4 term polynomial	n term polynomial
$x + 4$	$x^2 + 4x + 5$	$x^4 + x^3 + x^2 + x + 1$	a polynomial with n number of terms
$3x^2 - 7$	$2x^3 + x^2 - 1$		
$x^3 + 1$	$2.1x^4 + x - 100$		

Degree of a Polynomial

the biggest degree of any of the polynomial's terms

ex. $3x^2 - 6x + 1$ D: 2 D: 1 D: 0 Degree is 2

ex. $4a^3b^2 + b^3 - 5ab + 9a$ D: 5 D: 3 D: 2 D: 1 Degree is 5

Linear	Quadratic	Cubic
1st Degree	2nd Degree	3rd Degree
$8x$ or $8x^1$	$8x^2$	$8x^3$
$\frac{1}{2}x + 7$	$1.4x^2 + 20x - 5$	$x^3 - 27$

if all same variable

if different variables

Quartic	Quintic	6th degree Polynomial	nth degree Polynomial
Degree 4	Degree 5	Degree 6	Degree n
x^4	x^5		
$2x^4 - 2x^2$	$7.1x^5 - 30$		

if all same variable

if different variables

Identifying Polynomial Parts Homework

Find the following for each polynomial	Leading Coefficient / Constant	Degree / # of Terms	Type of Polynomial by Degree and Terms	Factors of Each Term	Write in Standard Form
$5x - 10x^2 + 20$	The Leading Coefficient is -2 The Constant is 20	Degree 2 3 terms	Quadratic Trinomial	5 and x -1,2,5,10, x, x 1,2,4,5,10,20	$-2x^2 + 5x + 20$
8	No LC C : 20	D : 0 1 term	Constant monomial	1, 2, 4, 8	8
$3y^2$	LC : 3 C : 0	D: 2 1 term	Quadratic monomial	1, 3, y, y	$3y^2$
$r^3 + 4 - r + s^2$	LC : 1 C : 4	D: 3 4 terms	3rd degree 4 term Polynomial	r, r, r 1, 2, 4 -1, r 1, s, s	$r^3 + s^2 - r + 4$
$5x^2y^4 - 4$	LC : 5 C : -4	D: 6 2 terms	6th degree Binomial	5, x, x, y, y, y, y -1, 2, 4	$5x^2y^4 - 4$
$15x^3y^2z$	LC : 15 C : 0	D : 6 1 term	6th degree monomial	1, 3, 5, 15, x, x, x, y, y, z	$15x^3y^2z$
$r^3 - 3 - r - r^5$	LC : -1 C : -3	D: 5 4 term	Quintic Fifth degree 4 term polynomial	1, r, r, r -1, 3 -1, r -1, r, r, r, r, r	$-r^5 + r^3 - r - 3$
$25x^2 - 16x^4$	LC : -16 C : 0	D : 4 2 terms	Quartic Binomial	1, 5, 25, x, x -1, 2, 4, 8, 16, x, x, x, x	$-16x^4 + 25x^2$
$8x^2 - 13x + 5$	LC : 8 C : 5	D : 2 3 terms	Quadratic Trinomial	1, 2, 4, 8, x, x -1, 13, x 1, 5	$8x^2 - 13x + 5$
$-7x + -9 + 4x^3$	LC : 4 C : -9	D : 3 3 terms	Cubic Trinomial	-1, 7, x -1, 3, 9 1, 2, 4, x, x, x	$4x^3 - 7x - 9$
$-6 + \frac{3}{4}x$	LC : $\frac{3}{4}$ C : -6	D : 1 2 terms	Linear Binomial	-1, 2, 3, 6 $\frac{3}{4}$, x	$\frac{3}{4}x - 6$