

Applied Technical Math 11/7

Warm Up IXL

8th Grade

Z.9

Operations with Polynomials

I can add, subtract, and multiply polynomials

Monomial

is an expression with one term such as

$$x \quad \text{or} \quad 2 \quad \text{or} \quad 3x^2y^3$$

Polynomial

is a monomial or the sum/difference of monomials such as

$$x + 2y \quad \text{or} \quad 3x^2 + y - 3z^3$$

Binomial

special name for a polynomial with two terms like

$$x + 2y$$

Trinomial

special name for a polynomial with three terms like

$$3x^2 + y - 3z^3$$

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Degree of a Polynomial

is the greatest degree (exponent) of any term in the polynomial.
Polynomials are named by their degree

Names for Polynomials

Linear = Degree 1

Quadratic = Degree 2

Cubic = Degree 3

Quartic = Degree 4

Quintic = Degree 5

Standard form of a Polynomial

has terms written in order from greatest degree to least degree such as $2x^2 + x - 5$

Leading Coefficient

The number in front of the 1st term of a polynomial written in standard form in $2x^2 + x - 5$ it is the 2

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Ex 1 Find each sum

A. $(\underbrace{2c^2}_{\text{blue}} + \underbrace{6c}_{\text{blue}} + \underbrace{4}_{\text{blue}}) + (\underbrace{5c^2}_{\text{blue}} - \underbrace{7}_{\text{blue}})$

$7c^2 + 6c - 3$

B. $(\cancel{2x^2}_{\text{blue}} + \underbrace{3x^3}_{\text{purple}}) + (7 - \underbrace{8x^3}_{\text{purple}} - \cancel{2x^2}_{\text{blue}})$

$-5x^3 + 7$

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Ex. 2 Find each difference

A. $(3c^3 - c + 11) - (2c^3 + 5c^2 - 2c + 9)$

$\cancel{3c^3} - \cancel{c} + 11 - \cancel{2c^3} - \cancel{5c^2} + \cancel{2c} - 9$

$c^3 - 5c^2 + c + 2$

B. $(-8xy + 3x^2 - 5y) - (4x^2 - 2y + 6xy)$

$-\cancel{8xy} + \cancel{3x^2} - 5y - \cancel{4x^2} + 2y - \cancel{6xy}$

$-1x^2 - 14xy - 3y$

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Ex. 3 Find each sum or difference

A. $(4x + 2y - 6z) + (5y - 2z + 7x) - (-9z - 2x - 3y)$

$$\cancel{4x} + \cancel{2y} - \cancel{6z} + \cancel{5y} - \cancel{2z} + \cancel{7x} + \cancel{9z} + \cancel{2x} + \cancel{3y}$$

$$13x + 10y + z$$

B. $(3c^2 - 7) - (4c + 7) + (c^2 + 5c - 8)$

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Ex. 4 Find each product

A. $5w(-3w^2 + 2w - 4)$

$$-15w^3 + 10w^2 - 20w$$

B. $4km^2(8km^2 + 2k^2m + 5k)$

$$32k^3m^4 + 8k^3m^3 + 2k^2m^2$$

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Ex. 5 Find each product FOIL = First Outer Inner Last

A. $(3c - 5)(c + 3)$

$$3c^2 + 9c - 5c - 15$$

$$3c^2 + 4c - 15$$

B. $(g + 10)(2g - 5)$

$$2g^2 - 5g + 20g - 50$$

$$2g^2 + 15g - 50$$

I can add, subtract, and multiply polynomials

Ex. 6 Find each product FOIL on Steroids

A. $(2y - 11)(y^2 - 3y + 2)$

$$\cancel{2y^3} - \cancel{6y^2} + \cancel{4y} - \cancel{11y^2} + \cancel{33y} - \cancel{22}$$

$$2y^3 - 17y^2 + 37y - 22$$

B. $(m^2 - 5m + 4)(m^2 + 7m - 3)$

$$\cancel{m^4} + \cancel{7m^3} - \cancel{3m^2} - \cancel{5m^3} - \cancel{35m^2} + \cancel{18m} + \cancel{4m^2} + \cancel{28m} - \cancel{12}$$

$$m^4 + 2m^3 - 34m^2 + 33m - 12$$

I can add, subtract, and multiply polynomials

Hmwk

Wkst