

LEARNING OBJECTIVE: We will add and subtract polynomials. (Alg1M1L3)

ACTIVATING PRIOR KNOWLEDGE:

We know how to combine like terms with monomials

$4x^2 - 5x - 3x^2 + xy^2 + 12x$ $\underline{4x^2} + \underline{(-5x)} + \underline{(-3x^2)} + \underline{xy^2} + \underline{12x}$ $(\underline{4x^2} + \underline{-3x^2}) + (\underline{-5x} + \underline{12x}) + xy^2$ $\boxed{x^2 + 7x + xy^2}$	$3a^3b^4 + 2a^4b^3 - 12a^3b^4 - a^4b^3$ $\boxed{a^4b^3 - 9a^3b^4}$
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CONCEPT DEVELOPMENT:

We need to use the commutative property when adding polynomials to group like terms together.

Example:

$$(5x^2 + 3) + (x^2 - 6)$$

* We need to use the distributive property when subtracting polynomials to distribute the negative.

Example:

$$(13y^3 - 2y^2) - (2y^3 + 6y^2)$$

$$13y^3 - 2y^2 - 2y^3 - 6y^2$$

We can add or subtract vertically or horizontally.

Example:

$$\underline{(5x^2 - 3x + 12)} + \underline{(3x^2 - 12x - 1)}$$

$$\begin{array}{r} 5x^2 - 3x + 12 \\ + 3x^2 - 12x - 1 \\ \hline 8x^2 - 15x + 11 \end{array}$$

GUIDED PRACTICE:**Steps for Adding Polynomials**

1. Use the commutative property to group like terms.
2. Combine like terms and restate the polynomial in standard form.

$(6x^2 + 5x + 2) + (-4x^2 + 3x - 7)$ $2x^2 + 8x - 5$	$(5x^2 - 2x + 3) + (x^2 + x + 2)$ $6x^2 - x + 5$
$(3a^3 - 2a + 4a^2 - 14) + (5a + 6 - 5a^3)$ $-2a^3 + 4a^2 + 3a - 8$	$(-2a^3 + 3a - 7a^2 - 4) + (2a^2 + 8a^3 - 6 + 10a^2)$ $6a^3 + 5a^2 + 3a - 10$

Steps for Subtracting Polynomials

1. Use the distributive property to distribute the negative sign.
2. Use the commutative property to group the like terms.
3. Combine like terms and restate the polynomial in standard form.
4. Or, line up vertically and subtract.

$(5n^2 + 4n + 3) - (2n^2 - 6n + 8)$ $3n^2 + 10n - 5$	$(3a^2b^3 + a^3b^2 - 4a^3b^3) -$ $(-3a^3b^3 + 2a^3b^2 - 6a^2b^3)$ $-a^3b^3 - a^3b^2 + 9a^2b^3$
$(p^3 - 7p - 2p^2 - 4) - (3p^3 - 8p + 4p^2)$ $-2p^3 - 6p^2 + p - 4$	$(-3b + 4b^3 + 9 - 7b^2) - (-6b^2 + 2 - b^3)$ $5b^3 - b^2 - 3b + 7$

INDEPENDENT PRACTICE:

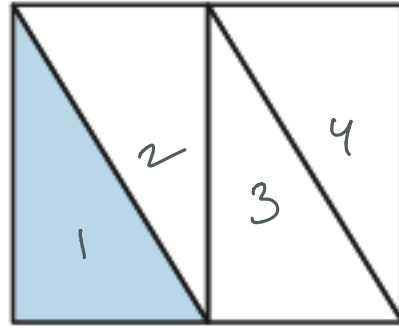
In square inches the area of the square is $4x^2 - 2x - 6$ and the area of the triangle is $2x^2 + 4x - 5$. What polynomial represents the shaded region?



Square - Triangle =

$$2x^2 - 6x - 1$$

The area of the shaded triangle is $5x^2 + 3x - 4$. What is the area of the entire figure?



$$20x^2 + 12x - 16$$

Amelie subtracted a quantity from the polynomial $3y^2 + 8y - 16$ and produced the expression $(y + 2)(y - 2)$. What quantity did Amelie subtract?

$$y^2 - 4$$

	y	2
y	y^2	$2y$
-2	$-2y$	-4

$$\begin{array}{r}
 3y^2 + 8y - 16 \\
 - (y^2 + 0y - 4) \\
 \hline
 2y^2 + 8y - 12
 \end{array}$$

Ash thinks that the sum of $5x^2y^3 + 6x + 7y$ and $8y + 4x^3y^2 + 2x$ is $9x^2y^3 + 8x + 15y$. Explain Ash's error and find the correct sum.

$$4x^3y^2 + 5x^2y^3 + 8x + 15y.$$

Name: _____

Math 7.2, Period _____

Mr. Rogove

Date: _____

CLOSURE:

How many terms will the polynomial have when all simplification is done? Simplify.

$$(31x^4y^6 - 2x^3 + 12xy^4 - 21x^4y^6) - (11x^3 + 10x^4y^6 - x^5y^5 - 12xy^4)$$

NOTES:

In ENY, this translates to lesson 8 of Alg 1, module 1. Try to combine with lesson 2.

HW: Problem Set from Alg 1 Mod 1 Lesson 8: Q1 and Q4 only??