

Fri / Mon

Key

3.1 Notes - Add, subtract, multiply polynomials

Terms: part of an equation or expression that consists of numbers and variables that are being added or subtracted

each term is separated by + or -

Example: $z^3 + 9z^2 - 4z - 7$ 4

How many terms does the polynomial have above?

Monomials - One term $\rightarrow 2x$

Binomials - 2 terms $\rightarrow 2x+1$

Trinomials - 3 terms $\rightarrow x^2+2x+1$

Polynomials - Many terms
* General Term

Adding Polynomials:

To add polynomials you:

- Combine your like terms
 - Like terms are terms with the exact same set of variables with the same exponent

Example: $9z - 4z$ are like terms because...

both have z

Example: $z^3 + 9z^2$ are not like terms because...

different exponents

- Add their Coefficients

$$(a^2 + 4a + 7) + (3a^2 - 5a + 2) \quad 4a^2 - a + 9$$

$$(z^3 + 9z^2 - 4z - 7) + (-2z^3 + 4z - 6)$$

$$-z^3 + 9z^2 - 13$$

$$(3x^2y + 4xy^2) + (7xy^2 + 12x^2y)$$

$$15x^2y + 11xy^2$$

To subtract polynomials you...

- Change the + to a - and change every sign of each term that is being subtracted (AKA: Distribute the negative)
- Combine like terms

Example: $(5x^2 - 3x + 4) + (2x^2 + 4x + 8)$

$$3x^2 - 7x + 12$$

$(b^2 + 12b + 5a - 7a^2) + (4b^2 + 16b + 2a + 6a^2)$

$$-3b^2 - 13a^2 - 4b + 7a$$

$(x^2 - 2x) + (4x^2 + 2x + 3)$

$$-3x^2 + 3$$

Multiplying polynomials:

Distribute OR Use Area Model

Example: $2x(x^2 - 1)$

$$2x^3 - 2x$$

	x^2	-1
$2x$	$2x^3$	$-2x$

9) $(5x + 1)(4x - 5)$

	$5x$	1
$4x$	$20x^2$	$4x$
-5	$-25x$	-5

$$= 20x^2 - 21x - 5$$

10) $(4x - 4)(3x - 4)$

	$4x$	-4
$3x$	$12x^2$	$-12x$
-4	$-16x$	$+16$

$$= 12x^2 - 28x + 16$$

Example: $(3x + 2)(x^2 + x - 4)$

	x^2	x	-4
$3x$	$3x^3$	$3x^2$	$-12x$
2	$2x^2$	$2x$	-8

$$= 3x^3 + 5x^2 - 10x - 8$$