9.1-9.3: Adding/Subtracting/Multiplying Polynomials

Study Guide

9.1: Add and subtract polynomials:

- Be able to identify an expression as a polynomial or not. If it is, be able to classify it by the number of terms, find the degree and write it so it is in descending order.

Expression	Polynomial?	Type	Degree	Descending Order
$-\frac{1}{2}$	Y	Mono	0	$-\frac{1}{2}$
x^3y^5z	Y	Mono	9	x^3y^5z
$3x+\frac{1}{x}$	N	-	-	-
$7bc^3+4b^4c$	Y	Bi	5	$4b^4c+7bc^3$
$5ab^3c^5-4a^2bc^2+3a^3b^3c$	Y	Tri	9	$3a^3b^3c-4a^2bc^2+5ab^3c^5$
$5z+2z^3-z^2+3z^4$	Y	Poly	4	$3z^4+2z^3-z^2+5z$
$-8rs^2+3r^2s-4r^2s^2+9r-3s$	Y	Poly	4	$-4r^2s^2+3r^2s-8rs^2+9r-3s$

- Be able to add polynomials together.

Ex: $(9x+6x^3-8x^2)+(-5x^3+6x)$

x^3-8x^2+15x

Ex: $(7a^3-4a^2-2a+1)+(a^3-1)$

$8a^3-4a^2-2a$

- Be able to subtract polynomials.

Ex: $(2s^3+8)-(-3s^3+7s-5)$

$5s^3-7s+13$

Ex: $(-k^2+7k+5)-(2k^4-3k^3-6)$

$-2k^4+3k^3-k^2+7k+11$

9.2: Multiply Polynomials:

- Be able to distribute, FOIL and multiplying polynomials

Ex: $-5a^3(4a^4-3a+1)$

$-20a^7+15a^4-5a^3$

Ex: $(-3d+10)(2d-1)$

$-6d^2+23d-10$

Ex: $(2s+5)(s^2+3s-1)$

$2s^3+11s^2+13s-5$

Ex: $(x+2)(x+5)-x(4x-1)$

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

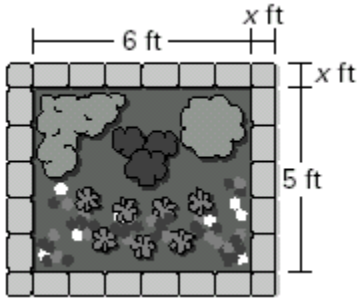
Ex: $(m+7)(m-3)-(m-4)(m+5)$

$3m-1$

Ex: You are designing a rectangular flower bed that you will border using brick pavers. The width of the border around the bed will be the same on every side, as shown.

a. Write a polynomial that represents the total area of the flower bed and the border.

$4x^2 + 22x + 30$



b. Find the total area of the flower bed and border when the width of the border is 1.5 feet.

72 ft²

9.3: Special Products Formulas:

- Be able to apply special products formulas

Ex: $(3m-7n)^2$

$9m^2-42mn+49n^2$

Ex: $(3x+8y)^2$

$9x^2+48xy+64y^2$

Ex: $(2a-5b)(2a+5b)$

$4a^2-25b^2$