Chapter 5.4 Polynomials

Term

Eg $2x^3 - x$

Degree

Polynomial

Degree of a polynomial

Polynomial Types

A. Monomial

B. Binomial

C. Trinomial

Like terms

Unlike terms

1.
2.

Addition of Polynomials

Eg $r^2 + 3r + 5r^2$

1. $(2x^4 - 6x^2 + 7) + (-3x^4 + 5x^2 + 2)$

② $-5x^3+3x$
(+) $8x^3-4x$

③ $4a^3-4a^2-4$
(+) $6a^3+5a^2-8$

Eg $\frac{4}{7}y^2-\frac{1}{5}y+\frac{7}{9}$
(+) $\frac{1}{3}y^2-\frac{1}{3}y+\frac{2}{5}$

Subtraction of Polynomials (method 1)

a.
b.

eg $(7y^2-11y+8)-(-3y^2+4y+6)$

Subtraction (method 2)

a.
b.
c.

eg $14y^3-6y^2+2y$
(-) $2y^3-7y^2+6$

Subtraction (more than 1 row)

eg subtract $7m^3n-m^2n^2+6mn$
from $5m^3n+3m^2n^2-4mn$

① $-6x^3+4x^2$
(-) $8x^3-6x^2$

② $13x^5-x^3-8x^2$
(-) $7x^5+5x^3+x^2$

③ $5a^4+2a^2+6$
(-) $-6a^4-a^2-1$

Graphing Polynomials

Method

1.
2.
3.
4.

eg) $y=x^2-5$

① $y=2x^2$

② $y=-x^2+2$

③ $y=(x-4)^2$

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Chapter 5.5 Multiplying Polynomials

Monomial times Monomial

1.
2.
3.

(eg) $5x^4 \cdot 3x^8$

① $3x^4y^3 \cdot 7x^5y^3z$

② $8x^9y \cdot \frac{3}{4}x^7y^4$

③ $6x^4y^2 \cdot 5x^{-2}y^{-3}$

Monomial times Polynomial

(eg) $6(3x+7)$

① $4x(3x^2-19)$

② $-2x(5x^2+x)$

③ $2x^4(3x^2+2x-5)$

Binomial times Binomial

foil:

(eg) $(2x+7)(3x-4)$

① $(7x-3)(x-5)$

② $(4x+3)(3x+5)$

③ $(x-2)(x-6)$

Multiple Variables

① $(5x-6)(2x+3)$

② $(-4y+x)(2y-3x)$

③ $3x^3(x-2)(2x+1)$

Binomial times Polynomial

Method 1

eg $(x+4)(3x^2+4x-5)$

Method 2 Column Multiplication

eg $3x^2+4x-5$

$\times \quad x+4$

① $(x+7)(x^2+2x-5)$

② $(3x+2)(5x^2+6x-2)$

③ $(6x+5)(2x^2+5x+3)$

Polynomial times Polynomial

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

(1) $(3x^2+5x+2)(4x^2-6x-3)$

(2) $(m^3-2m+1)(2m^2+4m+3)$

(3) $(2m^2+m-3)(m^2-4m+5)$