1.2 Polynomial Operations

Adding and subtracting polynomials

Anytime we need to add or subtract a polynomial, the big idea is to Combine Like Terms. ★ Remember to distribute the negative when subtracting polynomial!

1) Simplify each expression.

a. $(8p^2 - 7p) - (p - p^2)$ (opposite)

$8p^2 - 7p - p + p^2$

b. $(5 - 3m^2) - (6 - 8m^2)$

$5 - 3m^2 - 6 + 8m^2$

$5m^2 - 1$

c. $(2n - 7) + (2n + 3)$

$4n - 4$

d. $(k^3 - 3) + (5 + 6k^3)$

$7k^3 + 2$

e. $(6 - 3x^3 - 8x^4) + (5 + 7x^4)$

$-x^4 - 3x^3 + 11$

f. $(7p - 7p^4 + 3p^2) - (6p^3 + 1)$

$7p - 7p^4 + 3p^2 - 6p^3 - 1$

$-7p^4 - 6p^3 + 3p^2 + 7p - 1$

Multiplying polynomials

Multiplying polynomials is another use of the distributive property. This time we will make sure that we distribute each term in the first polynomial to each term in the second polynomial.

2) Simplify each expression.

a. $(3x + 6)(2x + 6)$

$6x^2 + 18x + 12x + 36$

$6x^2 + 30x + 36$

b. $(2v - 4)(3v - 1)$

$6v^2 - 2v - 12v + 1$

$6v^2 - 14v + 1$

c. $(3n - 4)(8n - 2)$

$24n^2 - 6n - 32n + 8$

$24n^2 - 38n + 8$

d. $(5b + 1)(7b - 6)$

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

$21m^3 - 15m^2 + 6m$

$-14m^2 + 10m - 4$

$21m^3 - 29m^2 + 16m - 4$

f. $(8n - 6)(5n^2 - n - 1)$

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

$28x^4 + 14x^3$

$-16x^3 - 8x^2$

$+4x + 2$

$28x^4 - 2x^3 - 8x^2 + 4x + 2$