Algebra 1

Lesson 9.2B

Multiply Polynomials

Warm-Up

Find the sum or difference.

(a) $(2x^3+4x-8)+(x^2-8x+3)$

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

(b) $(3x^3+5x^2-6x)-(2x^3-2x+9)$

$+-2x^3+2x-9$

x^3+5x^2-4x-9

(c) $(x^2-5x+8)-(3x^2-2)$

$+-3x^2+2$

$-2x^2-5x+10$

Find the product.

(d) $3a(2a^2-5a+7)$

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

(e) $(y+5)(y-3)$

$y^2-3y+5y-15$

$y^2+2y-15$

(f) $(2z+3)(5z-1)$

$10z^2-2z+15z-3$

$10z^2+13z-3$

Example 1. Multiply a Binomial and a Trinomial

(a) $(x+2)(x^2+2x+1)$

$x(x^2+2x+1)+2(x^2+2x+1)$

$x^3+2x^2+x+2x^2+4x+2$

x^3+4x^2+5x+2

(b) $(2x^2+3x+1)(x+5)$

$2x^2(x+5)+3x(x+5)+1(x+5)$

$2x^3+10x^2+3x^2+15x+x+5$

$2x^3+13x^2+16x+5$

(c) $(x-3)(3x^2+6x-4)$

$3x^3+6x^2-4x-9x^2-18x+12$

$3x^3-3x^2-22x+12$

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

$8x^3-20x^2-6x^2+15x+4x-10$

$8x^3-26x^2+19x-10$

Example 2. Simplifying Using Multiple Steps

Simplify each expression being careful to follow the order of operations and combine all like terms for the final answer.

(a) $2x(x+1)+(x+5)(x-3)$

$2x^2+2x+x^2-3x+5x-15$

$3x^2+4x-15$

(b) $(2y+1)(y-5)-(y+6)(y-4)$ $+-y^2+4y-6y+24$

$2y^2-10y+y-5-(y^2-4y+6y-24)$

$y^2-11y+19$

(c) $x^2(2x+3)-(2x+4)(x-4)$ $+-2x^2+8x-4x+16$

$2x^3+3x^2-(2x^2-8x+4x-16)$

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

(d) $-3d(d+8)+(2d-1)(2d+7)$

$-3d^2+-24d+4d^2+14d-2d-7$

$d^2-12d-7$

Try It!

(a) $2z(z+2)+(z+3)(z+5)$

$2z^2+4z+z^2+5z+3z+15$

$3z^2+12z+15$

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

$4x^2+20x-(x^2-3x+2x-6)$

$3x^2+21x+6$

Assignment

New: Pgs. 565 - 566 #20-25, 33-37, 42, 50

Review:

Find the sum or difference.

1. $(6x+4)+(x+5)$

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

3. $(4x^2+8x+7)-(5x^2-3x-2)$

4. $(6x^3+2x-8)-(4x^2+4x-12)$