Lesson 25 Section 5.2
Multiplication of Polynomials

To multiply two monomials, use the rules of exponents.

1) $(-8x^2y^3z)(2x^5y^2z^2) =$

2) $(5a^2b^3)(3a^5b^2) =$

To multiply a monomial and a polynomial with 2 or more terms, use the distributive property.

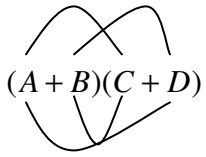
3) $4x(3x^3 - 4x^2 + 7x - 2) =$

4) $5a^2b(4a^2 - 6ab + b^2) =$

To multiply two binomials, use FOIL.

$(A + B)(C + D) = AC + AD + BC + BD$

First –Outer- Inner -Last



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

6) $(2a + 3b)(x - 4)$

7) $(4m - n)(2m + 3n)$

8) $(2x + 3)(2x - 3)$

9) $(4x + 3)4x + 3)$

10) $(x - \frac{1}{2})(\frac{2}{3}x - \frac{1}{4})$

To multiply any two general polynomials, multiply <u>each term</u> of one polynomial by the second polynomial. Distribute and combine terms.

11) $(4x+1)(3x^2-2x+2)$

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

13) $(3a^2+2ab+5b^2)(a+2b)$

Examine:

$(a+b)^2$

$=(a+b)(a+b)$

$=a^2+ab+ab+b^2$

$=a^2+2ab+b^2$

$=(\text{1st})^2+\text{twice(product of 1st and 2nd)}+(\text{2nd})^2$

To Square a Binomial, use this pattern. $(A\pm B)^2=A^2\pm 2AB+B^2$

1. square the first term
2. double the product of the terms
3. square the second term

14) $(4+9m)^2$

15) $(6r-5s)^2$

Examine:

$(a+b)(a-b)$

$= a^2 - ab + ab - b^2$

$= a^2 - b^2$

$= (1\text{st})^2 - (2\text{nd})^2$

Product of a Sum and Difference is this pattern: $(A+B)(A-B) = A^2 - B^2$

1. square of first term
2. subtract
3. square of second term

16) $(m-0.4)(m+0.4)$

17) $(2b+3c^2)(2b-3c^2)$

18) $(4x-\frac{3}{2})(4x+\frac{3}{2})$