HM3 Polynomial operations

Key

Section 1- Simplifying Polynomials. Combine ALL like terms by adding/subtracting or multiplying

7.) $(19x^2+12x+12)+(7x^2+10x+13)$

$26x^2+22x+25$

8.) $(4x^2-6x+7)+(-19x^2-15x-18)$

$-15x^2-21x-11$

9.) $(20x^2+15x+13)+(-19x^2+17x+5)$

$x^2+32x+18$

10.) $(9x^6-4x^5)+(10x^5-15x^4+14)$

$9x^6+6x^5-15x^4+14$

11.) $(19x^2+9x+16)-(5x^2+12x+7)$

$14x^2-3x+9$

12.) $(17x^2+7x-14)-(-6x^2-5x-18)$

$23x^2+12x+4$

13.) $3x^2(4x^3-5x+10)$

$12x^5-15x^3+30x^2$

14.) $3x(-x^2+2x-12)$

$-3x^3+6x^2-36x$

15) $(x-7)(x-6)$

$x^2-13x+42$

16) $(3x-1)(x+5)$

$3x^2+14x-5$

17) $(x+5)(x^2-6x+3)$

$x^3-x^2-27x+15$

18.) $(2x-3)(4x^2+8x-2)$

$8x^3+4x^2-28x+6$

Section 2 – Factor Out the Greatest Common Factor.

Example: $12a^3b+15ab^3=3ab(4a^2+5b^2)$

1. $2x^2+8x$ $2x(x+4)$

2. $10x^2y-15xy^2$ $5xy(2x-3y)$

3. $12x^2-9x+15$ $3(4x^2-3x+5)$

4. $3n^3-12n^2-30n$ $3n(n^2-4n-10)$

Section 3 – Factoring Trinomials – x^2+bx+c

Example: $x^2+7x+10=(x+2)(x+5)$

1. $x^2-10x+16$ $(x-8)(x-2)$

2. y^2-7y-8 $(y-8)(y+1)$

3. $x^2-14x+24$ $(x-12)(x-2)$

4. $x^2-11xy-60y^2$ $(x-15y)(x+4y)$

Section 4 – Factoring the Difference of Perfect Squares : $a^2-b^2=(a-b)(a+b)$

Examples: $x^2-4=(x-2)(x+2)$ $4x^2-1=(2x-1)(2x+1)$

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

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

3. $9y^2-16$ $(3y-4)(3y+4)$

4. $16x^4-y^2$ $(4x^2-y)(4x^2+y)$