AChor/MBF3C **Name:** _____
Date: _____

Worksheet 3-1: Expanding Binomials

Binomials:

Binomials are algebraic expressions with two terms.

Examine the following algebraic expressions. Circle all the binomials.

$x^2 + 2x - 3$ $3xy$ $4xy + 2$ $8a$ $x^2 + y$ $5b - 7$

Recall: Distributive Property

When expanding brackets, we distribute the property of the number or math operation outside the brackets to every term inside the brackets.

e.g., $3(x+4) = 3x + 12$ and $-(x+1) = -x - 1$

How do we expand $(x+1)(x+2)$?

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

$= (x)(x) + (x)(2) + (1)(x) + (2)(1)$ → Multiply each term in the left brackets to every single term in the right brackets

$= x^2 + 2x + x + 2$

$= x^2 + 3x + 2$ → Collect like terms.

Example 1:

(a) $(x+4)(x+5)$ **(b)** $(y+6)(y+3)$ **(c)** $(a+7)(a-1)$

(d) $(2m-4)(m+3)$ **(e)** $(n-10)(3n-9)$ **(f)** $(2w-3)(5w-7)$

Assigned Work: WS 3-1; WS 3-2; Text p. 239: #5-11

To multiply monomials: **1st multiply** the **signs**; **2nd multiply** the **numbers**; **3rd multiply** the **variables**

Simplify.

2. $(x+7)(x+2)$

3. $(y-9)(y+5)$

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

5. $(y-6)(y-7)$

6. $(2x+1)(x+3)$

7. $(x+5)(3x+1)$

8. $(4x-1)(2x+3)$

9. $(5x+3)(2x-7)$

10. $(6x-5)(2x-4)$

11. $(3x-2)(6x-5)$

Answers: **1.** (a) $x^2+9x+20$, (b) $y^2+9y+18$, (c) a^2+6a-7, (d) $2m^2+2m-12$, (e) $3n^2-39n+90$, (f) $10w^2-29w+21$; **2.** $x^2+9x+14$; **3.** $y^2-4y-45$; **4.** x^2+4x-5; **5.** $y^2-13y+42$; **6.** $2x^2+7x+3$; **7.** $3x^2+16x+5$; **8.** $8x^2+10x-3$, **9.** $10x^2-29x-21$, **10.** $12x^2-34x+20$, **11.** $18x^2-27x+10$