

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Multiplying**

1.  $(x+7)(x-7)$

$x^2 - 49$

2.  $(x+4)^2$

$x^2 + 8x + 16$

3.  $(3x+2y)(4x+5y)$

$12x^2 - 15xy + 8xy + 10y^2$

$12x^2 - 7xy + 10y^2$

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

$x^4 - 81$

Use the **Binomial Theorem** and Pascal's Triangle to write each binomial expansion.

5.  $(x+4)^3$

$x^3 + 12x^2 + 48x + 64$

6.  $(x-3)^4$

$x^4 - 12x^3 + 54x^2 - 108x + 81$

7.  $(x+2)^5$

$x^5 + 10x^4 + 40x^3 + 80x^2 + 80x + 32$

8.  $(3x+2)^3$

$27x^3 + 54x^2 + 36x + 8$

### Multiplying and Special Products

1. $(4x-5)(4x+5)$  $16x^2 - 25$	2. $(2y+5x)^2$  $4y^2 + 20xy + 25x^2$
3. $(2x-3)(x^2+2x-3)$ $2x^3 + 4x^2 - 6x - 3x^2 - 6x + 9$ $2x^3 + x^2 - 12x + 9$	4. $3x^4(4x^3 - 5x^2)$ $12x^7 - 15x^6$
5. $(7y-x)^2$  $49y^2 - 14xy + x^2$	6. $(2x^2+3)^2$  $4x^4 + 12x^2 + 9$

Use the **Binomial Theorem** and Pascal's Triangle to write each binomial expansion.

7. $(x-5)^3$  $x^3 - 15x^2 + 75x - 125$	8. $(x-2)^4$  $x^4 - 8x^3 + 24x^2 - 32x + 16$
9. $(2x+3y)^3$  $8x^3 + 12x^2y + 54xy^2 + 27y^3$	10. $(2x+5)^4$  $16x^4 + 160x^3 + 600x^2 + 1000x + 625$
11. $(x+1)^5$  $x^5 + 5x^4 + 10x^3 + 10x^2 + 5x + 1$	12. $(2x-3)^3$  $8x^3 - 36x^2 + 54x - 27$