

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

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

**Special Products**

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

$$x^2 - 49$$

2.  $(x+4)^2$

$$x^2 + 8x + 16$$

3.  $(10x+3)(10x-3)$

$$100x^2 - 9$$

4.  $(6-x^2)^2$

$$x^4 - 12x^2 + 36$$

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

5.  $(x+4)^3$

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

6.  $(x-3y)^4$

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

7.  $(3x+2)^3$

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

8.  $(x^2+2)^5$

$$x^{10} + 10x^8 + 40x^6 + 80x^4 + 80x^2 + 32$$

**Special Products**

<p>1. <math>(4x - 5)(4x + 5)</math></p> $16x^2 - 25$	<p>2. <math>(2y + 5x)^2</math></p> $4y^2 + 20xy + 25x^2$
<p>3. <math>(7y - x)^2</math></p> $49y^2 - 14xy + x^2$	<p>4. <math>(2x^2 + 3)^2</math></p> $4x^4 + 12x^2 + 9$

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

<p>5. <math>(x - 5)^3</math></p> $x^3 - 15x^2 + 75x - 125$	<p>6. <math>(x^2 - 2)^4</math></p> $x^8 - 8x^6 + 24x^4 - 32x^2 + 16$
<p>7. <math>(2x + 3y)^3</math></p> $8x^3 + 36x^2y + 54xy^2 + 27y^3$	<p>8. <math>(2x + 5)^4</math></p> $16x^4 + 160x^3 + 600x^2 + 1000x + 625$
<p>9. <math>(x^3 + 2y)^5</math></p> $x^{15} + 10x^{12}y + 40x^9y^2 + 80x^6y^3 + 80x^3y^4 + 32y^5$	<p>10. <math>(2x^2 - 3y^2)^3</math></p> $8x^6 - 36x^4y^2 + 54x^2y^4 - 27y^6$