

1. Write the first nine rows of Pascal's Triangle:

row 1		<u>1</u>								
row 2		<u>1</u>		<u>1</u>						
row 3		_____		_____		_____				
row 4		_____		_____		_____		_____		
row 5		_____		_____		_____		_____		_____
row 6		_____		_____		_____		_____		_____
row 7		_____		_____		_____		_____		_____
row 8		_____		_____		_____		_____		_____
row 9		_____		_____		_____		_____		_____

NOTE: to find  $(a + b)^n \rightarrow$  use row \_\_\_\_\_

2.  $(a + b)^2 =$
3.  $(x + y)^6 =$
4.  $(a - b)^4 =$

**CHECK ANSWERS:**

- |  |                   |                       |                                       |
|--|-------------------|-----------------------|---------------------------------------|
| $56x^5y^3$   | $2940x^2y^4$      | $-340,200\sqrt{5}x^3$ | $a^4 - 4a^3b + 6a^2b^2 - 4ab^3 + b^4$ |
| $x^6 + 6x^5y + 15x^4y^2 + 20x^3y^3 + 15x^2y^4 + 6xy^5 + y^6$                       | $6400\sqrt{5}x^3$ | $6400\sqrt{5}x^3$     | $a^2 + 2ab + b^2$                     |
| $a^{10} - 20a^8b + 160a^6b^2 - 640a^4b^3 + 1280a^2b^4 - 1024b^5$                   | $-1344xy^6$       | $-1344xy^6$           | $a^2 + 2ab + b^2$                     |
| $a^4b^4 - 12a^3b^3c + 54a^2b^2c^2 - 108abc^3 + 81c^4$                              | $a^2 + 2ab + b^2$ | $a^2 + 2ab + b^2$     | $a^2 + 2ab + b^2$                     |
| $64a^6 + 192\sqrt{5}a^5 + 1200a^4 + 800\sqrt{5}a^3 + 1500a^2 + 300\sqrt{5}a + 125$ | $a^2 + 2ab + b^2$ | $a^2 + 2ab + b^2$     | $a^2 + 2ab + b^2$                     |

For #5-7, use Pascal's Triangle to expand each binomial. Clearly show all work on the back or on a separate sheet of paper. Express final answer in simplified radical form...no decimals!

5.  $(2a + \sqrt{5})^6$
6.  $(a^2 - 4b)^5$
7.  $(ab - 3c)^4$

For #8-10, find the designated term of each binomial expansion. Clearly show all work. (Don't expand all terms, just find ONE term using extended patterns.)

8. 4<sup>th</sup> term of  $(x + y)^8$
9. 6<sup>th</sup> term of  $(x - 3\sqrt{5})$
10. 5<sup>th</sup> term of  $(2x + \sqrt{7}y)^6$
11. 7<sup>th</sup> term of  $(-3x + 2y)^7$
12. 4<sup>th</sup> term of  $(-4x - \sqrt{5})^6$