

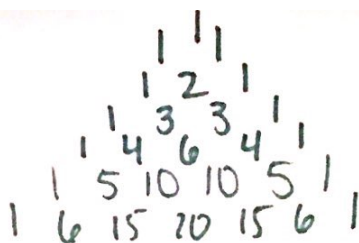
Algebra II

5.7 Binomial Expansion WS

Name _____

Period _____ Date _____

Expand each binomial.



1. $(x + 2)^4$

$$x^4 + 4x^3(2) + 6x^2(2)^2 + 4x(2)^3 + (2)^4$$

$$x^4 + 8x^3 + 24x^2 + 32x + 16$$

2. $(n - 3)^3$

$$(n)^3 + 3(n)^2(-3) + 3(n)(-3)^2 + (-3)^3$$

$$n^3 - 9n^2 + 27n - 27$$

3. $(2a + 2)^2$

$$(2a)^2 + 2(2a)(2) + 1(2)^2$$

$$4a^2 + 8a + 4$$

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

$$(x^2)^4 + 4(x^2)^3(-y^2) + 6(x^2)^2(-y^2)^2 + 4(x^2)(-y^2)^3 + (-y^2)^4$$

$$x^8 - 4x^6y^2 + 6x^4y^4 - 4x^2y^6 + y^8$$

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

$$(2x)^3 + 3(2x)^2(3y) + 3(2x)(3y)^2 + (3y)^3$$

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

Find the specified term of each binomial expansion.

6. third term of $(x - 2y)^5$

$$10(x)^3(-2y)^2$$

$$40x^3y^2$$

7. second term of $(x^2 + y^3)^5$

$$3(x^2)^2(y^3)^1$$

$$3x^4y^3$$

8. fourth term of $(x^2 - 2y)^4$

$$4(x^2)^1(-2y)^3$$

$$-32x^2y^3$$

9. The term $126c^4d^5$ appears in the expansion of $(c + d)^n$. What is n ?

b/c $4+5=9$

9

10. The coefficient of the second term in the expansion of $(r + s)^n$ is 7. Find the value of n , and write the complete term.

Row 7 b/c outside #'s always equal row

$n=7$

11. Use Pascal's Triangle to determine the binomial of the expanded expression

$x^6 + 6x^5 + 15x^4 + 20x^3 + 15x^2 + 6x + 1$

$(x + 1)^6$

$7(r)^6s - 7r^6s$

12. Error Analysis Your friend expands the binomial $(x - 2)^6$ as

$x^6 + 12x^5 + 30x^4 + 160x^3 + 240x^2 + 192x + 64$. What mistake did your friend make? What is the correct expansion?

Did not take in consideration "-2"

$$(x)^6 + 6(x^5)(-2) + 15(x)^4(-2)^2 + 20x^3(-2)^3 + 15(x)^2(-2)^4 + 6(x)(-2)^5 + 1(-2)^6$$

$$x^6 - 12x^5 + 60x^4 - 160x^3 + 240x^2 - 192x + 64$$