

Binomial Expansion - Notes

Find the term being asked for. Show your work.

1) 4th term in expansion of $(x - 5)^3$

$$1(x)^0(-5)^3$$

$$1 \cdot 1 \cdot -125$$

-125

2) 6th term in expansion of $(2y + 1)^6$

$$6(2y)^1(1)^5$$

$$6 \cdot 2y \cdot 1$$

12y

3) 5th term in expansion of $(a + 4)^4$

$$1(a)^0(4)^4$$

$$1 \cdot 1 \cdot 256$$

256

		row 1								
		row 1	1	1						
		row 2	1	2	1					
			1	3	3	1				
			1	4	6	4	1			
			1	5	10	10	5	1		
			1	6	15	20	15	6	1	
			1	7	21	35	35	21	7	1

4) 3rd term in expansion of $(2x + 1)^5$

$$10(2x)^2(1)^3$$

$$10 \cdot 8x^3 \cdot 1$$

80x³

Expand completely.

5) $(n + 5)^3$

$$1(n)^3(5)^0 + 3(n)^2(5)^1$$

$$+ 3(n)^1(5)^2 + 1(n)^0(5)^3$$

$$1 \cdot n^3 \cdot 1 + 3 \cdot n^2 \cdot 5 + 3 \cdot n \cdot 25 + 1 \cdot 1 \cdot 125$$

n³ + 15n² + 75n + 125

6) $(2b - 1)^6$

$$1(2b)^6(-1)^0 + 6(2b)^5(-1)^1 + 15(2b)^4(-1)^2 + 20(2b)^3(-1)^3$$

$$+ 15(2b)^2(-1)^4 + 6(2b)^1(-1)^5 + 1(2b)^0(-1)^6$$

$$1 \cdot 64b^6 \cdot 1 + 6 \cdot 32b^5 \cdot -1 + 15 \cdot 16b^4 \cdot 1 + 20 \cdot 8b^3 \cdot -1$$

$$+ 15 \cdot 4b^2 \cdot 1 + 6 \cdot 2b \cdot -1 + 1 \cdot 1 \cdot 1$$

64b⁶ - 192b⁵ + 240b⁴ - 160b³ + 60b² - 12b + 1