

The Binomial Theorem

Find each coefficient described.

1) Coefficient of x^2 in expansion of $(+2x)^5$

2) Coefficient of x^2 in expansion of $(x+2)^5$

3) Coefficient of x in expansion of $(x^5)^3 +$

4) Coefficient of b in expansion of $(3+b)^4$

5) Coefficient of x^3y^2 in expansion of $(x^3 - y)^5$

6) Coefficient of a^2 in expansion of $(2a+1)^5$

7) Coefficient of a^2b^2 in expansion of $(a-b)^4$

8) Coefficient of m^3n^2 in expansion of $(m+3n)^5$

Find each term described.

9) 2nd term in expansion of $(y^2 - x)^4$

10) 4th term in expansion of $(4y + x)^4$

11) 2nd term in expansion of $(3u^3)^1 -$

12) 3rd term in expansion of $(y - 4)^3$

13) 1st term in expansion of $(a + b)^5$

14) 2nd term in expansion of $(y - x)^4$

Expand completely.

15) $(2n^5)^1 +$

16) $(x + y)^4$

17) $(2m^4)^1 -$

18) $(x - 3y)^5$

19) $(v^3)^2 -$

20) $(x - y)^3$

21) $(x - 4y)^5$

22) $(2x^3 + 1)^5$

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

24) $(y^3 - 4x)^3$

The Binomial Theorem

Find each coefficient described.

1) Coefficient of x^2 in expansion of $(2 + x)^5$

80

2) Coefficient of x^2 in expansion of $(x + 2)^5$

80

3) Coefficient of x in expansion of $(x + 3)^5$

405

4) Coefficient of b in expansion of $(3 + b)^4$

108

5) Coefficient of x^3y^2 in expansion of $(x - 3y)^5$

90

6) Coefficient of a^2 in expansion of $(2a + 1)^5$

40

7) Coefficient of a^2b^2 in expansion of $(a - b)^4$

6

8) Coefficient of m^3n^2 in expansion of $(m + 3n)^5$

90

Find each term described.

9) 2nd term in expansion of $(y - 2x)^4$

 $-8y^3x$

10) 4th term in expansion of $(4y + x)^4$

 $16yx^3$

11) 2nd term in expansion of $(3u - 1)^3$

 $-27u^2$

12) 3rd term in expansion of $(y - 4)^3$

48y

13) 1st term in expansion of $(a + b)^5$

 a^5

14) 2nd term in expansion of $(y - x)^4$

 $-4y^3x$ **Expand completely.**

15) $(2n + 1)^5$

 $32n^5 + 80n^4 + 80n^3 + 40n^2 + 10n + 1$

16) $(x + y)^4$

 $x^4 + 4x^3y + 6x^2y^2 + 4xy^3 + y^4$

17) $(2m - 1)^4$

 $16m^4 - 32m^3 + 24m^2 - 8m + 1$

18) $(x - 3y)^5$

 $x^5 - 15x^4y + 90x^3y^2 - 270x^2y^3 + 405xy^4 - 243y^5$

19) $(v - 2)^3$

 $v^3 - 6v^2 + 12v - 8$

20) $(x - y)^3$

 $x^3 - 3x^2y + 3xy^2 - y^3$

21) $(x^4 - y)^5$

 $x^{20} - 5x^{16}y + 10x^{12}y^2 - 10x^8y^3 + 5x^4y^4 - y^5$

22) $(2x^3 + 1)^5$

 $32x^{15} + 80x^{12} + 80x^9 + 40x^6 + 10x^3 + 1$

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

 $y^3 - 3y^2x^2 + 3yx^4 - x^6$

24) $(y^3 - 4x)^3$

 $y^9 - 12y^6x + 48y^3x^2 - 64x^3$