

## The Binomial Theorem

**Find each coefficient described.**

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

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

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

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

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

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

**Find each term described.**

7) 2nd term in expansion of  $(y - 2x)^4$

8) 4th term in expansion of  $(4y + x)^4$

9) 1st term in expansion of  $(a + b)^5$

10) 2nd term in expansion of  $(y - x)^4$

**Expand completely.**

11)  $(2m - 1)^4$

12)  $(x - y)^3$

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

14)  $(2x^3 + 1)^5$

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

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

## 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

**Find each term described.**

7) 2nd term in expansion of  $(y - 2x)^4$

 $-8y^3x$ 

8) 4th term in expansion of  $(4y + x)^4$

 $16yx^3$ 

9) 1st term in expansion of  $(a + b)^5$

 $a^5$ 

10) 2nd term in expansion of  $(y - x)^4$

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

11)  $(2m - 1)^4$

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

12)  $(x - y)^3$

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

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

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

14)  $(2x^3 + 1)^5$

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

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

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

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

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