

5-1 Binomial Expansion**Expand completely.**

1) $(b + 3)^2$

2) $(x + 4)^3$

3) $(x + 5)^3$

4) $(a + 7)^2$

Find each coefficient described.

5) Coefficient of n^3 in expansion of $(n - 3)^5$

6) Coefficient of y^4 in expansion of $(y + 2)^6$

7) Coefficient of a^2b^4 in expansion of $(a - b)^6$

8) Coefficient of n^2m^4 in expansion of $(n + m)^6$

Find each term described.

9) 2nd term in expansion of $(b + a)^6$

10) 4th term in expansion of $(y - x)^5$

$$11) \text{ 4th term in expansion of } (y + x^4)^6$$

$$12) \text{ 4th term in expansion of } (y + x^2)^6$$

$$13) \text{ 3rd term in expansion of } (m^2 - 2n)^6$$

$$14) \text{ 3rd term in expansion of } (3y^4 - x)^5$$

Expand completely.

$$15) (3m + 2n)^4$$

$$16) (x + 2y)^6$$

$$17) (u - 2v^4)^6$$

$$18) (v^3 - 2u)^6$$

Answers to 5-1 Binomial Expansion

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|---|-----------------------------|------------------------------|
| 1) $b^2 + 6b + 9$ | 2) $x^3 + 12x^2 + 48x + 64$ | 3) $x^3 + 15x^2 + 75x + 125$ |
| 4) $a^2 + 14a + 49$ | 5) 90 | 6) 60 |
| 8) 15 | 9) $6b^5a$ | 10) $-10y^2x^3$ |
| 12) $20y^3x^6$ | 13) $60m^8n^2$ | 14) $270y^{12}x^2$ |
| 15) $81m^4 + 216m^3n + 216m^2n^2 + 96mn^3 + 16n^4$ | | |
| 16) $x^6 + 12x^5y + 60x^4y^2 + 160x^3y^3 + 240x^2y^4 + 192xy^5 + 64y^6$ | | |
| 17) $u^6 - 12u^5v^4 + 60u^4v^8 - 160u^3v^{12} + 240u^2v^{16} - 192uv^{20} + 64v^{24}$ | | |
| 18) $v^{18} - 12v^{15}u + 60v^{12}u^2 - 160v^9u^3 + 240v^6u^4 - 192v^3u^5 + 64u^6$ | | |