

## Precalculus Practice A.APR.C.5: Binomial Expansions

www.jmap.org

NAME: \_\_\_\_\_

Expand:

1.  $(3a - b)^4$

[A]  $81a^4 - 108a^3b + 54a^2b^2 - 12ab^3 + b^4$

[B]  $81a^4 + 12a^3b + 18a^2b^2 + 12ab^3 + b^4$

[C]  $81a^4 + 108a^3b + 54a^2b^2 + 12ab^3 + b^4$

[D]  $81a^4 - 12a^3b + 18a^2b^2 - 12ab^3 + b^4$

2.  $(a - 4b)^4$

[A]  $a^4 + 16a^3b + 24a^2b^2 + 16ab^3 + 256b^4$

[B]  $a^4 - 16a^3b + 24a^2b^2 - 16ab^3 + 256b^4$

[C]  $a^4 + 16a^3b + 96a^2b^2 + 256ab^3 + 256b^4$

[D]  $a^4 - 16a^3b + 96a^2b^2 - 256ab^3 + 256b^4$

3.  $(4a - b)^4$

[A]  $256a^4 + 256a^3b + 96a^2b^2 + 16ab^3 + b^4$

[B]  $256a^4 + 16a^3b + 24a^2b^2 + 16ab^3 + b^4$

[C]  $256a^4 - 16a^3b + 24a^2b^2 - 16ab^3 + b^4$

[D]  $256a^4 - 256a^3b + 96a^2b^2 - 16ab^3 + b^4$

4.  $(a - 3b)^4$

[A]  $a^4 - 12a^3b + 54a^2b^2 - 108ab^3 + 81b^4$

[B]  $a^4 + 12a^3b + 18a^2b^2 + 12ab^3 + 81b^4$

[C]  $a^4 + 12a^3b + 54a^2b^2 + 108ab^3 + 81b^4$

[D]  $a^4 - 12a^3b + 18a^2b^2 - 12ab^3 + 81b^4$

5.  $(2a - b)^4$

[A]  $16a^4 - 32a^3b + 24a^2b^2 - 8ab^3 + b^4$

[B]  $16a^4 + 8a^3b + 12a^2b^2 + 8ab^3 + b^4$

[C]  $16a^4 - 8a^3b + 12a^2b^2 - 8ab^3 + b^4$

[D]  $16a^4 + 32a^3b + 24a^2b^2 + 8ab^3 + b^4$

6. Use Pascal's Triangle to expand  $(j - 3k)^3$ .

7. Use Pascal's Triangle to expand  $(q + 4r)^3$ .

8. Use Pascal's Triangle to expand  $(e - 3f)^3$ .

9. Use Pascal's Triangle to expand  $(s - 2t)^3$ .

10. Use Pascal's Triangle to expand  $(p + 3q)^3$ .

11. Find the third term in the expansion of  $(c - 2d)^6$ .

[A]  $-160c^4d^2$  [B]  $60c^4d^2$

[C]  $-160c^2d^4$  [D]  $60c^2d^4$

## Precalculus Practice A.APR.C.5: Binomial Expansions

www.jmap.org

NAME: \_\_\_\_\_

12. Find the fourth term in the expansion of  $(y - 2z)^7$ .
- [A]  $35y^2z^5$                       [B]  $-280y^4z^3$   
[C]  $35y^4z^3$                       [D]  $-280y^2z^5$
13. Find the sixth term in the expansion of  $(x - 2y^2)^{14}$ .
- [A]  $-64,064x^9y^{10}$               [B]  $768,768x^9y^{10}$   
[C]  $-64,064x^6y^{16}$               [D]  $768,768x^6y^{16}$
14. Find the fifth term in the expansion of  $(3x - y^2)^{11}$ .
- [A]  $112,266x^7y^8$               [B]  $721,710x^5y^{12}$   
[C]  $721,710x^7y^8$               [D]  $112,266x^5y^{12}$
15. Find the sixth term in the expansion of  $(u - 2y)^8$ .
16. Find the fifth term in the expansion of  $(t + 3y)^7$ .
17. Find the fourth term in the expansion of  $(k + 2y)^6$ .
18. Expand  $(m + n)^5$ . Which one of the following is a term in the answer?
- [A]  $20m^2n^3$                       [B]  $5m^2n^3$   
[C]  $10m^2n^3$                       [D]  $15m^2n^3$
19. Expand  $(w + x)^6$ . Which one of the following is a term in the answer?
- [A]  $5w^3x^3$                       [B]  $20w^3x^3$   
[C]  $10w^3x^3$                       [D]  $15w^3x^3$
20. Which is the term that contains  $x^4$  in the expansion of  $(x + 2)^8$ ?
- [A]  $140x^4$                       [B]  $70x^4$   
[C]  $1120x^4$                       [D]  $17,920x^4$

Precalculus Practice A.APR.C.5: Binomial Expansions

www.jmap.org

[1] A

[2] D

[3] D

[4] A

[5] A

[6]  $j^3 - 9j^2k + 27jk^2 - 27k^3$

[7]  $q^3 + 12q^2r + 48qr^2 + 64r^3$

[8]  $e^3 - 9e^2f + 27ef^2 - 27f^3$

[9]  $s^3 - 6s^2t + 12st^2 - 8t^3$

[10]  $p^3 + 9p^2q + 27pq^2 + 27q^3$

[11] B

[12] B

[13] A

[14] C

[15]  $-1792u^3y^5$

[16]  $2835t^3y^4$

[17]  $160k^3y^3$

[18] C

[19] B

[20] C