LESSON 2.4

Exercise Set A

MM1A2d Expand binomials using the Binomial Theorem.

1. Find the numbers in the eighth row of Pascal's triangle.

2. Find the numbers in the ninth row of Pascal's triangle.

Use the Binomial Theorem and Pascal's triangle to write the binomial expansion.

3. $(x + 1)^2$

4. $(a + 3)^3$

5. $(p + 5)^4$

6. $(2 + y)^4$

7. $(1 + b)^6$

8. $(4 + q)^3$

9. $(x + 4)^2$

10. $(c - 2)^4$

11. $(z - 1)^5$

12. $(1 - g)^3$

13. $(5 - r)^4$

14. $(3 - b)^6$

15. $(2x + 1)^3$

16. $(3x - 1)^4$

17. $(2 + 5y)^3$

18. $(2x - 3)^4$

19. $(a + 4b)^5$

20. $(6x + y)^4$

21. Find the coefficient of x^2 in the expansion of $(x - 7)^4$.

22. Find the coefficient of x^3 in the expansion of $(2x + 5)^5$.

23. Find the coefficient of x^4 in the expansion of $(3x - 4)^6$.

24. **Error Analysis** *Describe* and correct the error in writing the binomial expansion.

$(x - 4)^3 = x^3 + 12x^2 + 48x + 64$ ✗

25. How many terms are in the expansion of $(x + y)^n$?

26. Use the diagram shown.

1 Row 0

1 1 Row 1

1 2 1 Row 2

1 3 3 1 Row 3

1 4 6 4 1 Row 4

1 5 10 10 5 1

a. What is the sum of the numbers in each of rows 0 through 4 of Pascal's triangle?

b. What is the sum in row n?

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LESSON 2.4

Exercise Set B

MM1A2d Expand binomials using the Binomial Theorem.

Use the Binomial Theorem and Pascal's triangle to write the binomial expansion.

1. $(x + 4)^3$

2. $(k + 8)^4$

3. $(w + 1)^6$

4. $(7 + y)^5$

5. $(5 + b)^6$

6. $(1 + m)^7$

7. $(x - 1)^6$

8. $(g - 6)^4$

9. $(4 - b)^6$

10. $(m - n)^5$

11. $(4 - 3y)^3$

12. $(2x - 1)^5$

13. $(4x + 2)^3$

14. $(10x - 1)^4$

15. $(5 + 3y)^3$

16. $(u - 2v)^4$

17. $(3c + d)^6$

18. $(4p - q)^6$

19. $(x^2 + 2)^4$

20. $(w^3 - 3)^4$

21. $(2s^4 + 5)^5$

22. Find the coefficient of x in the expansion of $(x + 9)^4$.

23. Find the coefficient of x^2 in the expansion of $(3x - 5)^5$.

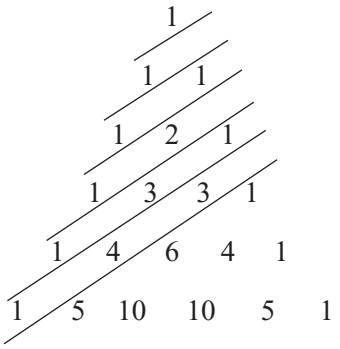
24. Find the coefficient of x^4 in the expansion of $(5x - 6)^6$.

25. **Error Analysis** *Describe* and correct the error in writing the binomial expansion.

$(x + 3)^3 = x^3 + 3x^2 + 3x + 27$ ✗

26. How are the expansions of $(x + y)^n$ and $(x - y)^n$ alike? How do they differ?

27. Use the diagram shown to describe the pattern formed by the sums of the numbers along the diagonal segments of Pascal's triangle.



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