

Math Sheet

Name _____ Score _____ / 12 Teacher _____ Date _____

Binomial Theorem

Find requested coefficients and terms, then expand each binomial in descending powers of the first operand.

A. Find the requested coefficient

1. $(3x^2 - y)^3$

Coefficient of: x^4y

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

Constant term coefficient:

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

Coefficient of: x^4

4. $(3x^2 + 2y)^5$

Coefficient of: x^4y^3

B. Find the requested term

5. $(4x - 1)^4$

Term 1: _____

6. $(2x^4 + 3)^3$

Term 4: _____

7. $(4x + 3y)^5$

Term 2: _____

8. $(3x - 4y)^3$

Term 2: _____

C. Expand using the Binomial Theorem

9. $(2x + 3)^3$

Expansion:

10. $(4x - y^4)^3$

Expansion:

11. $(2x^3 - 1)^4$

Expansion:

12. $(4x^4 + 4y^3)^5$

Expansion:

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Binomial Theorem

Answer key

Find requested coefficients and terms, then expand each binomial in descending powers of the first operand.

A. Find the requested coefficient

1. $(3x^2 - y)^3$

Coefficient of: x^4y

-27

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

Constant term coefficient:

-64

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

Coefficient of: x^4

256

4. $(3x^2 + 2y)^5$

Coefficient of: x^4y^3

720

B. Find the requested term

5. $(4x - 1)^4$

Term 1: $256x^4$

6. $(2x^4 + 3)^3$

Term 4: 27

7. $(4x + 3y)^5$

Term 2: $3840x^4y$

8. $(3x - 4y)^3$

Term 2: $-108x^2y$

C. Expand using the Binomial Theorem

9. $(2x + 3)^3$

Expansion:

$8x^3 + 36x^2 + 54x + 27$

10. $(4x - y^4)^3$

Expansion:

$64x^3 - 48x^2y^4 + 12xy^8 - y^{12}$

11. $(2x^3 - 1)^4$

Expansion:

$16x^{12} - 32x^9 + 24x^6 - 8x^3 + 1$

12. $(4x^4 + 4y^3)^5$

Expansion:

$1024x^{20} + 5120x^{16}y^3 + 10240x^{12}y^6 + 10240x^8y^9 + 5120x^4y^{12} + 1024y^{15}$