MATHEMATICS · GRADES 7-9

Multiplying monomials

Difficulty level: Intermediate

Mathematics: Grades 7-9

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Overview of the concept

This is how you multiply single terms together, the step that shows up when you work out the volume of a box from its side lengths. Single terms multiply by combining their numbers and their letters, and it is the basic move behind working out areas and volumes in algebra. You use it to find the volume of a box, the area of a shape with lettered sides, or to simplify an expression before you do anything else with it.



Rule

Multiply the numbers, and add the exponents of the same letter.

The coefficient of the answer is the product of the coefficients, and each letter keeps its base with its exponents added.

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Worked examples

EXAMPLE 1

Q Multiply $3x^2 \times 4x^3$

SOLUTION

Multiply the coefficients: $3 \times 4 = 12$.

Add the exponents of x: $2 + 3 = 5$.

So $3x^2 \times 4x^3 = 12x^5$

EXAMPLE 2

Q Multiply $-2a \times 5a^4$

SOLUTION

Multiply the coefficients: $-2 \times 5 = -10$.

Add the exponents of a: $1 + 4 = 5$.

So $-2a \times 5a^4 = -10a^5$

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Practice questions

1 Multiply $2x \times 3x$.

- **A** $5x^2$
- **B** $6x^2$
- **C** $6x^3$
- **D** $5x^3$

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2 Multiply $4a^2 \times 2a$.

- **A** $8a^4$
- **B** $6a^3$
- **C** $8a^3$
- **D** $8a^2$

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3 Multiply $5m \times m^3$.

- A $5m^3$
- B $6m^4$
- C $5m^4$
- D $5m^5$

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4 Multiply $-3y^2 \times 2y$.

- A $-6y^3$
- B $6y^3$
- C $-5y^3$
- D $-6y^2$

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5 Multiply $2x^3 \times 3x^3$.

- **A** $6x^9$
- **B** $6x^6$
- **C** $5x^6$
- **D** $6x^3$

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6 Multiply $2x^2 \times 3x \times 4x$.

- **A** $24x^4$
- **B** $24x^5$
- **C** $9x^4$
- **D** $24x^2$

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7 **Multiply $x^4 \times x$.**

- **A** x^4
- **B** x^6
- **C** $2x^5$
- **D** x^5

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8 **Multiply $-4t^2 \times -3t$.**

- **A** $12t^3$
- **B** $-12t^3$
- **C** $12t^5$
- **D** $7t^3$

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9 Multiply $6b \times 0$?

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10 Multiply $3x^2 \times 2y$.

A $6x^3y$

B $6x^2y$

C $5x^2y$

D $6xy$

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ANSWER KEY

1. $6x^2$

2. $8a^3$

3. $5m^4$

4. $-6y^3$

5. $6x^6$

6. $24x^4$

7. x^5

8. $12t^3$

9. 0

10. $6x^2 y$

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