

SUPPLEMENTARY MODULE 4

Add and Subtract Simple Monomials



GRADE 8



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ADD AND SUBTRACT SIMPLE MONOMIALS

HEY THERE, AMAZING LEARNER!

If you're feeling a bit overwhelmed or struggling to catch up, don't worry, you're not alone. We're here to support you every step of the way. Remember, it's all about progress, not perfection! Each challenge you face is. Just another opportunity to grow and become even stronger in your mathematical skills. So, let's take



LEARNING OBJECTIVES



①

Identify common mistakes in adding and subtracting monomials.

②

Add and subtract monomials

③

Demonstrate improved accuracy in adding and subtracting monomials through practice and reflection.

Adding Monomials:



1. **Add the coefficients.** Determine the coefficient of each monomial and add.
2. **Keep the variables and exponents the same.** After adding the coefficients, just copy the variable and the exponent.
3. **Simplify the expression.** Simplify the expression by removing any unnecessary coefficients or parentheses.

Example:

Given: $3x^2y + 5x^2y$

Solution:

1. The given monomials are like terms with the same variable of x raised to power of 2 and variable y raised to power of 1.
2. Now, we add the coefficients of the like terms:

$$3 + 2 = 5$$

4. Keeping the variables the same:

$$5x^2y$$

3. So, the sum of the given monomials is $5x^2y - 1xy^2$.

Subtracting Monomials:



1. **Subtract the coefficients.** Determine the coefficient of each monomial and subtract it. Keep the variables and exponents the same.
2. **Keep the variables and exponents the same.** After subtracting the coefficients, just copy the variable and the exponent.
3. **Simplify the expression.** Combine like terms and simplify the expression by removing any unnecessary coefficients or parentheses.

Example:

Given: $7x^3y^2 - (-10x^3y^2)$

Solution:

To subtract these monomials, we first identify the like terms, which are terms with the same variables and exponents.

1. The given monomials are like terms with the same variable of x raised to power of 3 and variable y raised to power of 2.
2. Now, we subtract the coefficients of the like terms:

$$7 - (-10)$$

Note that the subtrahend is negative in sign, and the operation is subtraction, hence the coefficient 10 will become positive and will add to the minuend 7 (Law of Subtracting integers)

$$= 7 + 10$$

$$= 17$$

3. Keeping the variables and the exponents the same,

$$= 17x^3y^2$$

4. So, the difference of the given monomials is $17x^3y^2$



Common mistakes that often make when adding and subtracting monomials.



1. Combining Unlike Terms

We sometimes mistakenly combine terms with different variables or different exponents.

Example: $7xy^2 + 3x^2y = 10xy^2$

Explanation:

- The given monomials are unlike terms.
- The terms may have the same variable x and y, but the two variables are being raised to different powers.
- In the $7xy^2$, the x is raised to power of 1 and the y is raised to power of 2. Meanwhile, in $3x^2y$, the variable x is raised to power of 2 and y is raised to power of 1.
- Hence, the expression cannot be further simplified. Adding it will just only result to $7xy^2 + 3x^2y$



2. Ignoring Signs When Subtracting

Sometimes, we forget to distribute the negative sign when subtracting monomials.

Example: $14ab - (-12ab) = 2ab$

Explanation:

- The subtrahend is in negative sign which is $-12ab$.
- The operation is subtraction; hence, the negative sign should be distributed first to the subtrahend before simplifying.
- Since $-12ab$ is already negative, distributing the negative sign will make it positive term, which would be $12ab$. Since the sign has been changed, it will be then added to the minuend which is $14ab$.
- Note that the law of subtracting integers has been applied.
- **Hence, $14ab + 12ab = 26ab$**

REMEMBER....

- Only like terms can be combined.
- Coefficients are added in addition and subtracted in subtraction.
- Exponents remain the same when combining like terms.

