

Multiplying Monomials and Polynomials (review)

Please review the completed examples on this handout to help you today.

This should stay in your notebook to be used in the future, as well.

When we *multiply terms with variables*, we:

- 1.) Multiply the coefficients
- 2.) Add the exponents on any variables that are the same, and this sum becomes the exponent on that variable in your answer
- 3.) Rewrite any terms that do not once

Examples

$$2x^3y^5 \cdot 5x^6y^2 = 10x^9y^7 \leftarrow \text{multiplied the coefficients, and added the exponents on the variables that are the same}$$


$$a^3b^5 \cdot -4a^7 = -4a^{10}b^5 \leftarrow \text{multiplied the coefficients (the coefficient on the first term is assumed to be 1), added the exponents on the variables that are the same, AND rewrite } b^5 \text{ onto the answer because it did not occur more than once within the problem, meaning there were no other Exponents to add to 5}$$


$$3xy^4 \cdot 2x^4y^2 = 6x^5y^6 \leftarrow \text{multiplied the coefficients, and added the exponents on the variables that are the same (REMEMBER, any variable that does not seem to have an exponent has an exponent of 1!!!)}$$


When we *multiply a monomial (one term) by a polynomial (more than one term)* we:

- 1.) Distribute the monomial in front of the parentheses to every single term inside of parentheses.
When we do this, we are multiplying this monomial by each term, and follow the steps above to do so (make sure the signs of each term are correct)

Examples:


$$8(x + 3) = 8x + 24$$


$$2x(5x - 7) = 10x^2 - 14x$$


$$-3(x^2 + 4x - 2) = -3x^2 - 12x + 6$$

