Name _____ Date _____ Class _____

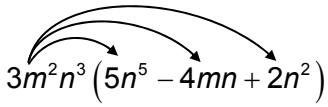
LESSON 18-1

Multiplying Polynomial Expressions by Monomials

Success for English Learners

Problem 1

When multiplying polynomial expressions by monomials, the Distributive Property can be used.



$3m^2n^3\left(5n^5 - 4mn + 2n^2\right)$

$3m^2n^3\left(5n^5\right) - 3m^2n^3\left(4mn\right) + 3m^2n^3\left(2n^2\right)$

Multiply the monomial by every term in the polynomial.

$15m^2n^{3+5} - 12m^{2+1}n^{3+1} + 6m^2n^{3+2}$

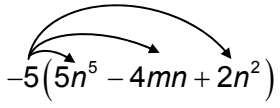
The product of powers property states that when multiplying powers with the same base, the exponents are added.

$p^4 \cdot p^3 = p^{4+3} = p^7$

$15m^2n^8 - 12m^3n^4 + 6m^2n^5$

Problem 2

When multiplying polynomial expressions by an integer, rules of negatives still apply.



$-5\left(5n^5 - 4mn + 2n^2\right)$

$(-5)\left(5n^5\right) - (-5)\left(4mn\right) + (-5)\left(2n^2\right)$

$-25n^5 + 20mn - 10n^2$

1. In Problem 2, why does the subtraction change to addition?

   _____

   _____

2. Why did the exponents in Problem 2 remain the same?

   _____

3. In Problem 1, how would multiplying by $-3m^2n^3$ make the answer different?

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