


Here are the steps required for Multiplying Polynomials:


Step 1: Distribute each term of the first polynomial to every term of the second polynomial. Remember that when you multiply two terms together you must multiply the coefficient (numbers) and add the exponents.

Step 2: Combine like terms (if you can).

Example 1 – Multiply: $3x^2(4x^2 - 5x + 7)$

Step 1: Distribute each term of the first polynomial to every term of the second polynomial. In this case, we need to distribute the $3x^2$.	 $3x^2(4x^2 - 5x + 7) = 12x^4 - 15x^3 + 21x^2$
Step 2: Combine like terms. In this case, there are no like terms.	$12x^4 - 15x^3 + 21x^2$

Example 2 – Multiply: $-6xy(4x^2 - 5xy - 2y^2)$

Step 1: Distribute each term of the first polynomial to every term of the second polynomial. In this case, we need to distribute the $-6xy$.	 $-6xy(4x^2 - 5xy - 2y^2) = -24x^3y + 30x^2y^2 + 12xy^3$
Step 2: Combine like terms. In this case, there are no like terms.	$-24x^3y + 30x^2y^2 + 12xy^3$

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Example 3 – Multiply: $(3x - 4y)(5x - 2y)$

Step 1: Distribute each term of the first polynomial to every term of the second polynomial. In this case, we need to distribute the $3x$ and the $-4y$.

$$(3x - 4y)(5x - 2y) = 15x^2 - 6xy - 20xy + 8y^2$$

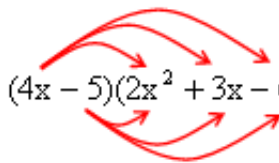
Step 2: Combine like terms.

$$15x^2 - 26xy + 8y^2$$

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Example 4 – Multiply: $(4x - 5)(2x^2 + 3x - 6)$

Step 1: Distribute each term of the first polynomial to every term of the second polynomial. In this case, we need to distribute the $4x$ and the -5 .


$$(4x - 5)(2x^2 + 3x - 6) = 8x^3 + 12x^2 - 24x - 10x^2 - 15x + 30$$

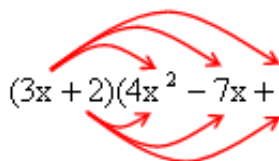
Step 2: Combine like terms.

$$8x^3 + 2x^2 - 39x + 30$$

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Example 5 – Multiply: $(3x + 2)(4x^2 - 7x + 5)$

Step 1: Distribute each term of the first polynomial to every term of the second polynomial. In this case, we need to distribute the $3x$ and the 2 .


$$(3x + 2)(4x^2 - 7x + 5) = 12x^3 - 21x^2 + 15x + 8x^2 - 14x + 10$$

Step 2: Combine like terms.

$$12x^3 - 13x^2 + x + 10$$

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