

## Accuplacer Study Modules

### TOPIC: Multiply Polynomials

Khan Academy Link: <https://www.khanacademy.org/math/algebra2/arithmetric-with-polynomials/multiplying-polynomials-review/v/more-multiplying-polynomials>

Steps to 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 a binomial by a binomial

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

**Step 1: Distribute** each term of the first polynomial to every term of the second polynomial. (FOIL)  
 $(3x - 4y)(5x - 2y)$

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

**Step 2: Combine Like Terms**

$$15x^2 - 6xy - 20xy + 8y^2$$
$$15x^2 - 26xy + 8y^2$$

*Example 2:* Multiply a binomial by a polynomial

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

**Step 1: Distribute** each term of the first polynomial to every term of the second polynomial.

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

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

**Step 2: Combine Like Terms**

$$8x^3 + 12x^2 - 24x - 10x^2 - 15x + 30$$
$$8x^3 + 2x^2 - 39x + 30$$

Now complete the four practice problems on the next page and check your answers!

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1.  $-6xy(4x^2 - 5xy - 2y^2)$

2. Find the area of a rectangle with a length of  $(3x + 2)$  and a width of  $(4x^2 - 7x + 5)$ .

3.  $(4x + 3)(3x^2 - 5x - 6)$

4. Find the area of a rectangle with a length of  $(4x + 3)$  and width of  $(7x - 5)$ .

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