



Math Virtual Learning

Algebra 2/Honors Algebra 2

Review Factoring Polynomial Expressions

April 13, 2020



Lesson: April 13, 2020

Objective/Learning Target:

Students will review methods for factoring polynomial expressions.

Let's Get Started:

When factoring ask yourself these questions:

#1 Is there a common monomial factor (GCF)?

#2 Is this polynomial a difference of squares?

#3 Is this polynomial a sum or difference of cubes?

#4 Are there four terms? If so, factor by grouping.

#5 Is this polynomial in a quadratic form?

Practice:

The last few days we have reviewed factoring polynomials. Here are some key things to remember:

key idea

To factor a quadratic of the form $x^2 + bx + c$, write it as

$$(x + r_1)(x + r_2)$$

where $c = r_1 \cdot r_2$ and $b = r_1 + r_2$.

key idea

Sum of cubes:

$$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

Difference of cubes:

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

key idea

If a polynomial has four terms, you may be able to factor by grouping. Once the terms are in standard order, factor out the greatest common factor (GCF) of the first two terms and the GCF of the second two terms. If the expressions in parentheses match, you can factor by grouping:

$$ac + ad + bc + bd$$

$$a(c + d) + b(c + d)$$

$$(a + b)(c + d)$$

Practice Continued:

1. Get out a sheet of paper, review factoring polynomials: [Factoring Polynomials](#)

You will receive feedback on your work.

2. If you need more guidance, look back at the virtual Algebra 2 lessons from April 6, 7, 8, and 9.

Factoring Polynomials Practice:

On the same sheet of paper, factor the following practice problems.

Factoring Polynomials Completely

1. $b^8 - 12b^4 - 45$

2. $c^5 - 5c^4 - 66c^3$

3. $125k^3 - 729$

4. $x^3 - 3x^2 - 16x + 48$

Answer Key:

Once you have completed the problems, check your answers here.

Key

1. $(b^4 - 15)(b^4 + 3)$

2. $c^3(c - 11)(c + 6)$

3. $(5k - 9)(25k^2 + 45k + 81)$

4. $(x - 3)(x - 4)(x + 4)$

Additional Practice:

Click on the links below to get additional practice and to check your understanding!

[Factor out a GCF](#) Practice

[Factor quadratics](#) Practice

[Factor sums and difference of cubes](#) Practice

[Factor by grouping](#) Practice

[Factor using a quadratic form](#) Practice

[Factoring All Techniques](#) Practice

[Factoring All Techniques](#) Practice Answer Key