Algebra 2
Lesson: April 9, 2020

Learning Target:
Students will factor polynomial expressions that are in quadratic form.

Let's Get Started:
Watch Video - Factoring Quadratic Forms

Practice: Go to this website:
Factoring Polynomials in Quadratic Form

1. Get out a sheet of paper, read the article and work out the problems on Factoring Polynomials in Quadratic Form. Once you have worked out the problems, check your answers using the link on hte page.
2. Square root the first term; what 2 terms multiply to get the last term, but add together to get the middle term?
3. Here is an example of factoring a polynomial that is in quadratic form:

Factor completely: $(a)\ 16x^4 - 81$ **and** $(b)\ 2p^8 + 10p^5 + 12p^2$.

a. $16x^4 - 81 = (4x^2)^2 - 9^2$ — Write as difference of two squares.

$= (4x^2 + 9)(4x^2 - 9)$ — Difference of two squares

$= (4x^2 + 9)(2x + 3)(2x - 3)$ — Difference of two squares

b. $2p^8 + 10p^5 + 12p^2 = 2p^2(p^6 + 5p^3 + 6)$ — Factor common monomial.

$= 2p^2(p^3 + 3)(p^3 + 2)$ — Factor trinomial in quadratic form.

Factoring Quadratic Forms Practice:

On the same sheet of paper, factor the following 6 practice problems completely.

1. $x^4 - 7x^2 - 18$
2. $7p^5 - 31p^3 - 20p$
3. $2b^6 + 17b^3 + 21$
4. $9x^4 + 7x^2 - 56$
5. $m^5 - 9m^3 - 8m$
6. $7x^7 - 45x^4 - 28x$

Factoring Quadratic Forms Answer Key:

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

1. $(x+3)(x-3)(x^2+2)$

2. $p(7p^2+4)(p^2-5)$

3. $(2b^3+3)(b^3+7)$

4. Not factorable

5. $m(m+1)(m-1)(m^2-8)$

6. $x(7x^3+4)(x^3-7)$

Additional Practice:

Click on the links below to get additional practice and to check your understanding. There are two videos, extra practice problems, and the answer key to those problems.

Factoring by GCF Video (continue to look for this first)

Factoring Quadratic Form Trinomials Video

Factoring Quadratic Forms Practice

Factoring Quadratic Forms Practice Answer Key