

AIM: HOW DO WE FACTOR POLYNOMIALS?

Do Now:

<p>1. What are the factors of 2? $1, 2$ What are the factors of 4? $1, 2, 4$ What is the greatest common factor between the two? $2!$</p>	<p>2. Find the square root of the following: $\sqrt{36}$ $\sqrt{4}$ $\sqrt{x^4}$ 6 4 x^2 ↓ Divide exponent by 2!</p>	<p>3. Name two numbers that add to 5 and multiply to -6. $+6$ and -1</p>
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METHODS OF FACTORING:

1. G.C.F

1) $2x - 4x^2$
 $2x(1 - 2x)$

2) $3ab^2 - 6ab$
 $3ab(b - 2)$

2. D.O.T.S

3) $x^4 - 100$
 $(x^2 - 10)(x^2 + 10)$

4) $36 - 4b^2$
 $(9 - 2b)(9 + 2b)$

3. Easy Trinomials (a = 1) AMI!

5) $x^2 + 5x - 6$
 $(x + 6)(x - 1)$

6) $x^4 + x^2 - 12$
 $(x^2 + 4)(x^2 - 3)$

4. Factor Completely: *more than one method needed!*
 Always check GCF FIRST!

7) $2x^2 - 8x - 10$
 $2(x^2 - 4x - 5)$
 $2(x - 5)(x + 1)$

8) $x^4 - 10x^2 + 9$
 $(x^2 - 9)(x^2 - 1)$
 $(x + 3)(x - 3)(x + 1)(x - 1)$

Practice:

9) $x^4 + 4x^2 - 12$

$(x^2 + 6)(x^2 - 2)$

10) $4x^2 - 4x - 28$

$4(x^2 - x - 7)$

$4(x - 6)(x + 1)$

11) $63c^2 - 7$

$7(9c^2 - 1)$

$7(3c + 1)(3c - 1)$

12) $y^4 - 81$

$(y^2 - 9)(y^2 + 9)$

$(y + 3)(y - 3)(y^2 + 9)$

13) $\pi c^2 - \pi d^2$

$\pi(c^2 - d^2)$

$\pi(c + d)(c - d)$

14) $x^4 - 2x^2 - 8$

$(x^2 - 4)(x^2 + 2)$

$(x + 2)(x - 2)(x^2 + 2)$

*15) $x^8 - x^{12}$

~~$(x^4 - x^6)(x^4 + x^6)$~~

~~$(x^2 - x^4)$~~

$x^8(1 - x^4)$

$x^8(1 + x^2)(1 - x^2)$

$x^8(1 + x^2)(1 + x)(1 - x)$

*16) $x^8 + x^4 - 20$

$(x^4 + 5)(x^4 - 4)$

$(x^4 + 5)(x^2 + 2)(x^2 - 2)$