

Unit 2

Lesson 6

Factoring

Created with Doceri



Factoring

Honors
Quadratic Functions
- Factoring

**Finding a
Greatest Common
Factor (GCF)**

2 TERMS

3 TERMS

4 TERMS

1. If a polynomial can not be factored, it is _____.

2. Always check for a _____ first!!!

3. Count the number of terms to see which method to try.

4. Always check to see if your polynomial can be factored further.

5. You can always check your factors by multiplying the factors back together.

Date: _____

Created with Doceri

I. Greatest Common Factor (GCF) → if possible, always do this FIRST.

A. $24a^2b - 18ab^2$

$$6ab(4a - 3b)$$

B. $5x^2y - 20xy^2z + 35y^3z^2$

$$5y(x^2 - 4xyz + 7y^2z^2)$$

C. $2x^3yz^3 - 7xy^5z^2$

$$xyz^2(2x^2z - 7y^4)$$

Created with Doceri



I. Factoring 4 term polynomials → Group by 2's

A. $\underline{4x - 20} + \underline{3xy - 15y}$

$$4(\underline{x-5}) + (3y(\underline{x-5}))$$

$$(3y+4)(x-5)$$

B. $\underline{15ab^2 - 3a} + \underline{10b^2 - 2}$

$$3a(\underline{5b^2-1}) + 2(\underline{5b^2-1})$$

$$(3a+2)(5b^2-1)$$

C. $\underline{3a^2 - ab} - \underline{12a + 4b}$

$$a(\underline{3a-b}) - 4(\underline{3a-b})$$

$$(a-4)(3a-b)$$

D. $16x^3 - 128x^2 + 2x - 16$

$$2(\underline{8x^3 - 64x^2} + \underline{x - 8})$$

$$2(8x^2(\underline{x-8}) + 1(\underline{x-8}))$$

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

Created with Doceri



$$3^3 = 27$$
$$3^2 = 9$$
$$9$$

Created with Doceri



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

$$(16x^2 + 2)(x - 8)$$

$$16x^3 - 128x^2 + 2x - 16$$

Created with Doceri



II. Difference of Two Squares Factoring → $a^2 - b^2 = (a - b)(a + b)$ *** Always check for a GCF first!!!!

A. $x^2 - 9$

$$(x-3)(x+3)$$

$$x^2 - 3x + 3x - 9$$

$$x^2 - 9$$

B. $x^2 - 49$

$$(x-7)(x+7)$$


C. $x^2 - 36y^2$


$$(x+6y)(x-6y)$$

Created with Doceri



A. $x^2 - 9$	B. $x^2 - 49$	C. $x^2 - 36y^2$
D. $16x^2 - 1$ $(4x-1)(4x+1)$	E. $x^2 + 25$ Not a diff. of squares	F. $-1 + x^2$ $x^2 - 1$ $(x-1)(x+1)$

Created with Doceri 

<p>G. $24x^5 - 54xy^6$ $(6x(4x^4 - 9y^6))$ $(6x(2x^2 - 3y^3)(2x^2 + 3y^3))$</p>	<p>H. $4x^2 - 64$ $4(x^2 - 16)$ $4(x - 4)(x + 4)$</p>	<p>I. $\sqrt{x^4} - \sqrt{16}$ $(x^2 + 4)(x^2 - 4)$</p>
<p>$(2x - 8)(2x + 8)$ $(2(x - 4))(2(x + 4))$ $4(x - 4)(x + 4)$</p> <p>$(x^2 + 4)(x - 2)(x + 2)$</p> <p>Created with Doceri </p>		

58

III. Factoring Trinomials $\rightarrow x^2 + bx + c$ "SHORTCUT" *** Always check for a GCF first!!!

A. $x^2 + 9x + 20$

A	M	1	20
		2	10

$(x+4)(x+5)$

4 5

B. $x^2 - 7x + 10$

A	M	1	10
		2	5

$(x-2)(x-5)$

C. $x^2 + 3x - 40$

A	M	1	40
		2	20
		4	10

$(x-5)(x+8)$

Created with Doceri 

<p>D. $x^2 - 3x - 10$</p> <p>1 10 2 5</p> <p>$(x+2)(x-5)$</p>	<p>E. $2x^2 - 8x - 90$</p> <p>A M</p> <p>1 45 3 15 5 9</p> <p>$2(x^2 - 4x - 45)$</p> <p>$2(x-9)(x+5)$</p>	<p>F. $x^4 - 7x^2 + 12$</p> <p>1 12 2 6 -3 -4</p> <p>$(x^2-3)(x^2-4)$</p> <p>$(x^2-3)(x-2)(x+2)$</p>
---	--	---

Created with Doceri




Page 35 odd


Created with Doceri




IV. Factoring Trinomials → $\boxed{a}x^2 + bx + c$ *** Always check for a GCF first!!!!

A. $2x^2 + 7x + 6$	B. $2x^2 - 9x + 4$	C. $3x^2 + 5x + 2$
--------------------	--------------------	--------------------

Created with Doceri 

D. $6x^2 - 4x - 42$	E. $6x^2 + 11xy + 4y^2$	F. $5x^4 - 17x^2 + 14$
Created with Doceri 		

<p>A. $(x - 4)(3x - 1) = 0$</p> <p>$x =$ _____</p>	<p>B. $x^2 - 5x - 6 = 0$</p> <p>$x =$ _____</p>	<p>C. $3x^2 - 5x + 2 = 0$</p> <p>$x =$ _____</p>
<p>Created with Doceri </p>		

D. $x^2 - 3x = 0$

E. $x^2 = 36$

F. $x^3 - 3x^2 = 10x$

$x =$ _____

$x =$ _____

$x =$ _____

Created with Doceri



Page 35-39
Extra Practice

Created with Doceri



A large rectangular area with a black border, containing horizontal blue lines for writing. The lines are evenly spaced and extend across the width of the box. The text "Created with Doceri" and a green hand icon are located in the bottom right corner of this area.

Created with Doceri 