AVID
Decades of College Dreams

2-1 Solving Quadratic Equations

Class/Period: 4th

Date: 11/9/16

Essential Question: How do you solve a quadratic equation by factoring?

Questions:	Notes:
	Quadratic equation
	$ax^2 + bx + c = 0$
	Quadratic term — linear term — constant
	*Note: A degree 2 (squared) polynomial has 2 solutions.
	We have several ways to solve:
	- factoring
	- factoring by grouping
	- Square root method
	- completing the square
	- Quadratic Formula
	- Graphing
	Factoring
	* The key is the Zero Product Property (Zero factor)
	if $xy=0$, then $x=0$ or $y=0$
	then $(x-a)(x-b)=0$, then
	$x-a=0$ or $x-b=0$

Questions:	Notes:

$ax^2+bx+c=0$

$(x-a)(x-b)=0$

$x^2-ax-bx+ab=0$

$x^2+(-a-b)x+ab=0$

I need two factors that:

$a \cdot b = c$ and

$a+b =$ b term

Ex) $x^2+13x+36=0$

$(x+9)(x+4)=0$

$9 \cdot b = 36 \quad 9 \cdot 4 = 36$

$9+b = 13 \quad 9+4 = 13$

$x+9=0$ or $x+4=0$

$x=-9$ or $x=-4$

Factoring by Grouping

use when $a \neq 1$

Ex) $3x^2+2x-5=0$

(a, b, c)

$a \cdot c$

$3 \cdot -5$

-15

$-3 \quad 5$

2

b

Goal is to "split" the b-term so that I have two binomials.

to "split" the b, I need two numbers that multiply to be $a \cdot c$ and add to b

$3x^2-3x+5x-5=0$

GFC GCF

$3x(x-1)+5(x-1)=0$

GCF is $(x-1)$

$(x-1)(3x+5)=0$

$x-1=0$ $\quad 3x+5=0$

$x=1$ $\quad 3x=-5$

$x=-5/3$

Ex) $6x^2+5x-4=0$

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Hw p. 35

2A #1, 2

2B #1, 3