# Solving Quadratic Equations by Factoring

## Agenda

Warm-Up

Notes (Flip Book)

HW: Practice (2 pages)

## Reminders

HW 5.5 due tomorrow

EOC Simulation Wed 4/2

## Warm-Up (Thursday)

Factor each polynomial completely.

1. $x^2 - 12x + 35$

$= (x-5)(x-7)$

$35x^2$, $-5x$, $-7x$, $-12x$; $35 = 5 \cdot 7$

2. $2x^3 + 16x^2 + 32x$

$2x(x^2 + 8x + 16) = 2x(x+4)(x+4)$

$16x^2$, $4x$, $4x$, $8x$

# Solving Quadratic Equations: Flip Book

This flip book contains your notes for the next 3 lessons. Glue it on to page 112 when it is complete.

The blue sheet goes on the outside. Match your tabs so it looks like the right. You may have to flip your paper(s). Glue or staple the 2 pages together along the spine.

Solving Quadratic Equations...

By Factoring

By Quadratic Formula

By Graphing

# Solving Quadratic Equations by Factoring

**See unit 8 for more factoring help**

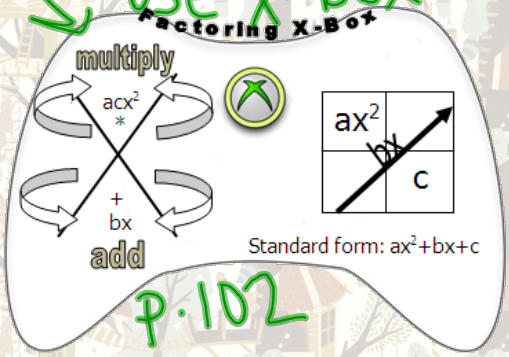
Steps to Solve by Factoring:

1. Solve for y (and plug in y = 0)
2. Factor (don't forget the GCF!)
3. Set each factor equal to zero and solve

move everything to one side of the equation.

$x^2 - 13x + 36 = 0$

use X-box




p. 102

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

$x-4=0$ $x-9=0$

$+4\ +4$ $+9\ +9$

$x=4$ $x=9$

{4, 9}

Remember: Solutions are also called x-intercepts, roots, or zeroes.

2. $x^2 - 3x - 10 = 0$

{5, -2}

$(x-5)(x+2)=0$

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

$x=5$ $x=-2$

3. $3x^2 = 12x$

move to one side

$-12x\ -12x$

$3x^2 - 12x = 0$

$3x(x-4)=0$

$\frac{3x}{3}=\frac{0}{3}$ $x-4=0$

$x=0$ $x=4$

{0, 4}

4. $6x^2 + 5 = -17x$

$+17x\ +17x$

$6x^2 + 17x + 5 = 0$

$(3x+1)(2x+5)=0$

$3x+1=0$ $2x+5=0$

$-1\ \ -1$ $-5\ \ -5$

$\frac{3x}{3}=\frac{-1}{3}$ $\frac{2x}{2}=\frac{-5}{2}$

$x=-\frac{1}{3}$ $x=-\frac{5}{2}$

Given the roots of the function, find the equation.

5. $x:\left\{-3, \frac{5}{2}\right\}$

solve for "0"

$x=-3$ $2x=5$

$+3\ +3$ $-5\ -5$

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

$(x+3)(2x-5)=0$

put in standard form by using box

6. $x:\{-2,5\}$

WORK BACKWARD

2 pages

Algebra I – Unit 9: Topic 3 – Solving Quadratics by Factoring

**Practice - Solving Quadratics by Factoring** **pp 630-635**

**Name** _____ **Date** _____ **Period** _____

solve for "0"

**Solve the equations below by factoring.**

1. $(3x-2)(4x-3)=0$ start @ step 3

2. $4x^2-6x+9=6x$

3. $x^2=8x-16$

4. $12x^2-1=-x$

5. $x^2+2x=15$

6. $2x^2=-4-6x$

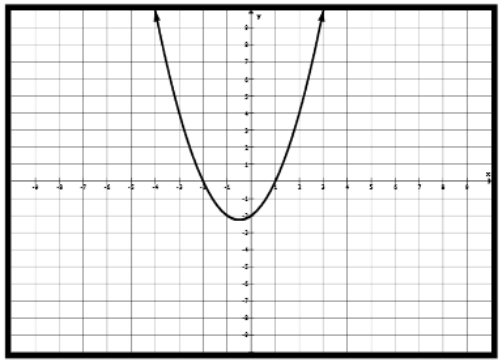
**Given the roots find the quadratic equation.**

7. $x:\{-3,7\}$

8. $x:\left\{-\frac{2}{5},4\right\}$

## Algebra I – Unit 9: Topic 3 – Solving Quadratics by Factoring

9. Which equation best represents the graph shown?



A $(x-2)(x+1)=y$
B $(x+2)(x+1)=y$
C $(x+2)(x-1)=y$
D $(x-2)(x-1)=y$

11. The area of a rectangular floor is described by the equation $w(w-9)=252$ where $w$ is the width of the floor in meters. What is the width of the floor?

12. A group of friends try to keep a beanbag from touching the ground without using their hands. Once the beanbag has been kicked, its height can be modeled by $h=-16t^2+14t+2$, where $h$ is the height in feet above the ground and $t$ is the time in seconds. Find the time it takes the beanbag to reach the ground.

13. The length of a rectangle is 3 cm more than the width. The area is 70 square centimeters. Find the dimensions of the rectangle.