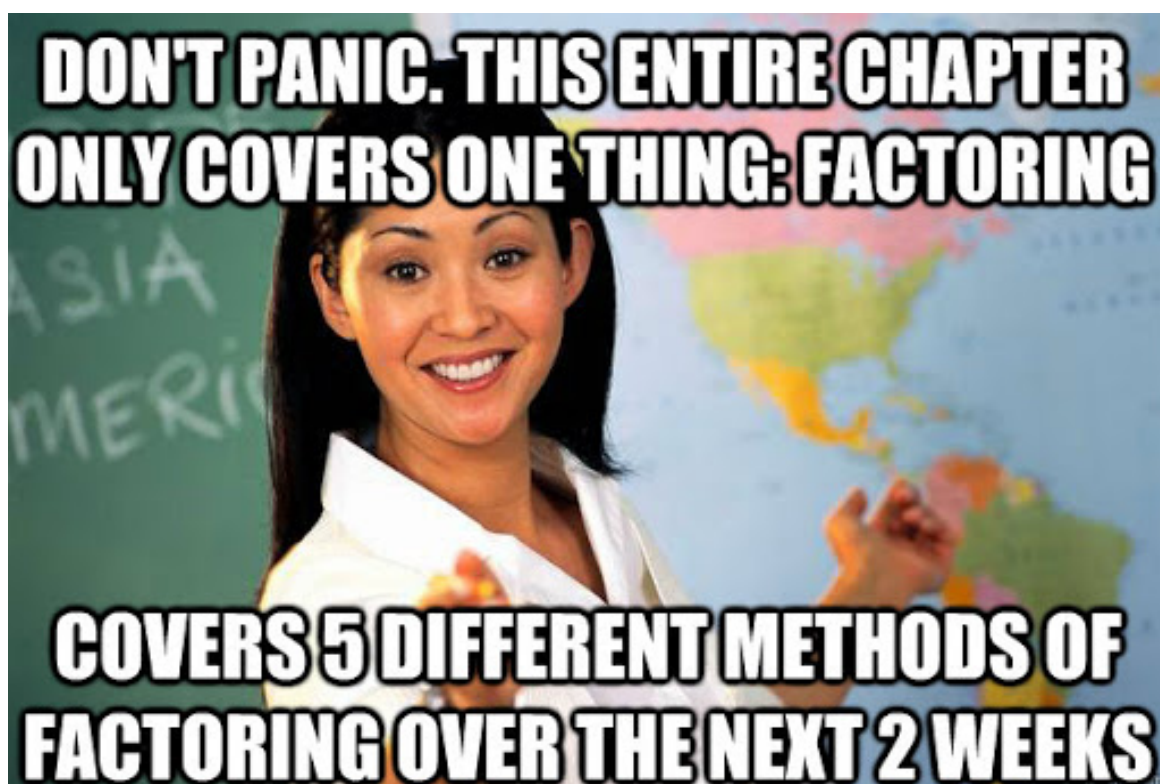


Good morning!

1. "Here"
2. Discuss Unit 2 Part 1 Test results
3. Notes on Solving by Factoring
4. Homework is on DeltaMath:)

Algebra 1
Unit 2 Part 2
 Solving Quadratic Equations

Monday	Tuesday	Wednesday	Thursday	Friday
February 22 nd	February 23 rd	February 24 th	February 25 th	February 26 th
Factoring	Unit 2 Part 1 Test Opens	Unit 2 Part 1 Test due at Midnight	Solving Quadratics by Factoring ✓	Solving Quadratics by Factoring
March 1 st	March 2 nd	March 3 rd	March 4 th	March 5 th
Simplifying Radicals Solving Quadratics by Square Roots	Solving Quadratics by Square Roots Unit 2 Part 2 Quiz Opens	Unit 2 Part 2 Quiz due at Midnight	Solving Quadratics by Completing the Square	Solving Quadratics by Completing the Square The Discriminant
March 8 th	March 9 th	March 10 th	March 11 th	March 12 th
The Discriminant Solving Quadratics by the Quadratic Formula	Solving Quadratics by the Quadratic Formula Unit 2 Part 2 Test Opens	Unit 2 Part 2 Test due at Midnight		



Solving Quadratic Equations by Factoring

To solve a quadratic equation by factoring, you must...

- ① Set equation = 0
- ② Standard form on left side $ax^2+bx+c=0$
- ③ Factor Completely
- ④ Set each factor = 0 and solve

Note: the solutions to quadratic equations are known as **solutions, **zeroes**, **roots**, and **x-intercepts****

Examples:

1) $x^2 + 2x - 3 = 0$ (3 terms)

AC method: $\frac{3}{-3} \quad \frac{-1}{-1}$

Factor: $(x-1)(x+3) = 0$

Solve: $x-1=0 \Rightarrow x=1$; $x+3=0 \Rightarrow x=-3$

Check: $(1-1)(1+3)=0 \Rightarrow 0(4)=0$; $(-3-1)(-3+3)=0 \Rightarrow (-4)(0)=0$

2) $x^2 - 11x = -30$ (3 terms)

Standard form: $x^2 - 11x + 30 = 0$

AC method: $\frac{30}{-5} \quad \frac{-6}{-6}$

Factor: $(x-6)(x-5) = 0$

Solve: $x-6=0 \Rightarrow x=6$; $x-5=0 \Rightarrow x=5$

3) $3x^2 - 75 = 0$ (2 terms)

Factor out GCF: $3(x^2 - 25) = 0$

Factor: $3(x+5)(x-5) = 0$

Solve: $x+5=0 \Rightarrow x=-5$; $x-5=0 \Rightarrow x=5$

4) $15x^2 - 8x + 1 = 0$ (3 terms)

AC method: $\frac{15}{-3} \quad \frac{-1}{-1}$

Factor: $(5x-1)(3x-1) = 0$

Solve: $5x-1=0 \Rightarrow x=\frac{1}{5}$; $3x-1=0 \Rightarrow x=\frac{1}{3}$

20

$$10(2) = 20$$

$$5(4) = 20$$

$$20(1) = 20$$

$$4(5) = 20$$

$$1(20) = 20$$

$$2(10) = 20$$

$$40\left(\frac{1}{2}\right) = 20$$

$$80\left(\frac{1}{4}\right) = 20$$

$$2000\left(\frac{1}{100}\right) = 20$$

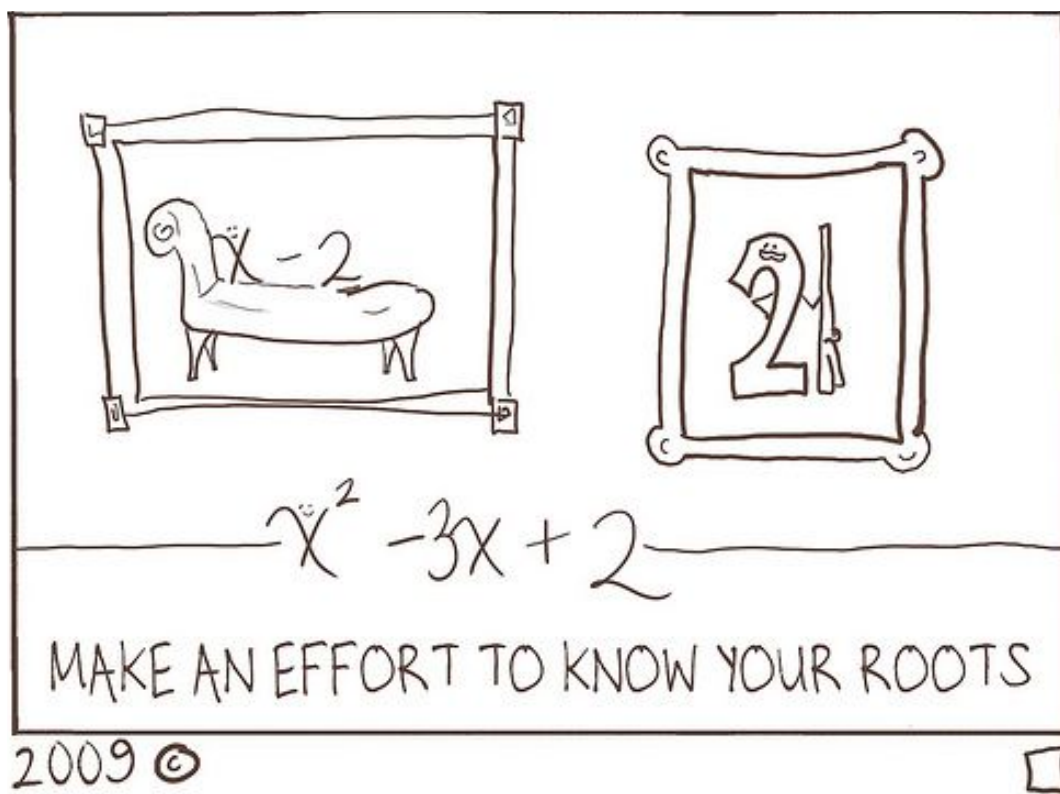
⋮

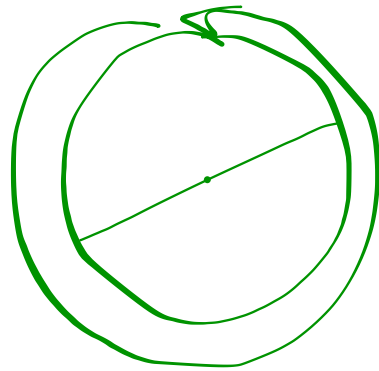
$$5(0) = 0$$

Zero Product Property

ZPP

$$\text{Anything}(0) = 0$$





$$\frac{d}{C} = \frac{d}{\pi d}$$

$x = -5, 3$ ✓
 ~~$x = 5, 3$~~
 5) $2x^2 + 4x - 20 = 10$
 $-10 -10$
 $2x^2 + 4x - 30 = 0$
 $2(x^2 + 2x - 15) = 0$
 $2(x+5)(x-3) = 0$
 $2 \neq 0$ $x+5=0$ $x-3=0$
 $\frac{-5}{-5} \quad \frac{3}{3}$
 $x = -5$ $x = 3$

3 terms
 ① GCF
 ② Trinomial
 $\begin{array}{r} a \cdot c \\ -15 \\ -3 \quad 5 \\ \hline 2 \\ x \quad -3 \\ \hline x^2 \quad -3x \\ +5x \quad -15 \end{array}$

2 terms
 ① Diff. of 0
 $(3x+2)(3x-2) = 0$
 $3x+2=0$ $3x-2=0$
 $\frac{-2}{-2} \quad \frac{2}{+2}$
 $\frac{3x}{3} = \frac{-2}{3}$ $\frac{3x}{3} = \frac{2}{3}$
 $x = \frac{-2}{3}$ $x = \frac{2}{3}$

7) $4x^2 + 10x + 9 = -3x$
 $+3x \quad +3x$
 $4x^2 + 13x + 9 = 0$
 $(4x+9)(x+1) = 0$
 $4x+9=0$ $x+1=0$
 $\frac{-9}{-9} \quad \frac{-1}{-1}$
 $x = -\frac{9}{4}$ $x = -1$

3 terms
 Trinomial
 $\begin{array}{r} a \cdot c \\ 36 \\ 4 \quad 9 \\ \hline 13 \\ x \quad +1 \\ \hline 4x^2 \quad 4x \\ +9x \quad 9 \end{array}$

8) $16x^2 - 24x = -9$
 $+9 \quad +9$
 $16x^2 - 24x + 9 = 0$
 $(4x-3)(4x-3) = 0$
 $4x-3=0$ $4x-3=0$
 $\frac{3}{+3}$
 $x = \frac{3}{4}$
 "with a multiplicity of 2"
 $\begin{array}{r} a \cdot c \\ 144 \\ 144 \\ \hline -12 \quad -12 \\ \hline 24 \\ 4x \quad -3 \\ \hline 4x^2 \quad -12x \\ -12x \quad 9 \end{array}$



Solving Quadratics by Factoring – Matching WS

A: $\{2, 0\}$	B: $\{-1, 4\}$	C: $\{\frac{5}{2}, -3\}$	D: $\{-3, -4\}$
E: $\{2, 3\}$	F: $\{-\frac{4}{3}, 1\}$	G: $\{\frac{3}{5}, -5\}$	H: $\{\frac{1}{3}, -1\}$

1) $4n^2 - 8n = 0$

2) $x^2 + 7x + 12 = 0$

3) $10a^2 + 5a - 75 = 0$

4) $3k^2 + 2k - 1 = 0$

5) $20a^2 + 88a - 62 = -2$

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

7) $4n^2 - 20n + 25 = 1$

8) $4p^2 - 4 = -p + p^2$

