

Started with  
 3.5 Lesson  
 and proved  
 quadratic Formula

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Quadratic formula using complete the square

$$ax^2 + bx + c = a \left( x + \frac{b}{2a} \right)^2 + c - \frac{b^2}{4a}$$

idea  $\frac{3(2) - \frac{2}{3}}$

$$a \left( x + \frac{b}{2a} \right)^2 + \frac{4ac - b^2}{4a} = 0$$

$\frac{-3+7}{7-3}$

$$a \left( x + \frac{b}{2a} \right)^2 = -\frac{(4ac - b^2)}{4a}$$

$$\sqrt{\frac{a}{a} \left( x + \frac{b}{2a} \right)^2} = \sqrt{\frac{-4ac + b^2}{4a^2} \cdot \frac{1}{a}}$$

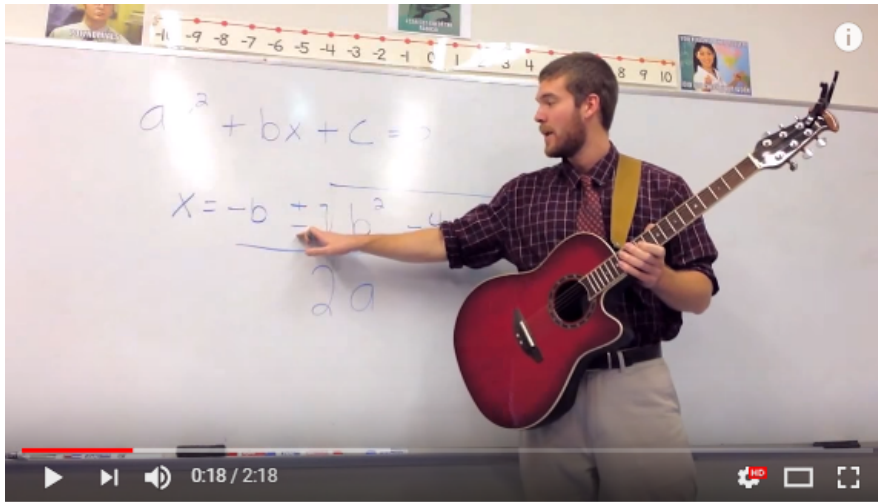
$$x + \frac{b}{2a} = \pm \frac{\sqrt{b^2 - 4ac}}{\sqrt{4a^2}}$$

$$x + \frac{b}{2a} = \pm \frac{\sqrt{b^2 - 4ac}}{2a}$$

axis of symmetry  $\rightarrow \frac{-b}{2a}$  distance

Quadratic formula  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

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The "One Direction" Quadratic Formula Song

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SECONDARY MATH II // MODULE 3  
SOLVING QUADRATICS & OTHER EQUATIONS - 3.6

$$ax^2 + bx + c$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

3.6

READY, SET, GO!

Name

Period

Date

**READY**

Topic: Finding x-intercepts for linear equations *Sub b = 0.*

1. Find the x-intercept of each equation below. Write your answer as an ordered pair. Consider how the format of the given equation either facilitates or inhibits your work. *(-, 0)*

a. $3x + 4(0) = 12$  <i>x =</i>	b. $y = 5x - 3$	c. $y - 5 = -4(x + 1)$
d. $0 = -4x + 1$  <i>x =</i>	e. $y - 6 = 2(x + 7)$	f. $5x - 2y = 10$

2. Which of the linear equation formats above facilitates your work in finding x-intercepts? Why?

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3. Using the same equations from question 1, find the y-intercepts. Write your answers as ordered pairs

a.  $3x + 4y = 12$

b.  $y = 5x - 3$

c.  $y - 5 = -4(x + 1)$

d.  $y = -4x + 1$

e.  $y - 6 = 2(x + 7)$

f.  $5x - 2y = 10$

*Sub x=0*

*(0, -3)*

4. Which of the formats above facilitate finding the y-intercept? Why?

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**SET**

Topic: Solve Quadratic Equations, Connecting Quadratics with Area

For each of the given quadratic equations, (a) describe the rectangle the equation fits with. (b)

*Quitting idea*

What constraints have been placed on the dimensions of the rectangle?

5.  $x^2 + 7x - 170 = 0$   
*(x-10) normal side-length decreased by 10*  
*(x+17) side-length increases by 17.*

6.  $x^2 + 15x - 16 = 0$

8.  $x^2 + 10x - 80 = 0$

Solve the quadratic equations below.

9.  $x^2 + 7x - 170 = 0$   
 $(x-10)(x+17) = 0$   
 $x = 10, -17$

10.  $x^2 + 15x - 16 = 0$

11.  $x^2 + 2x - 35 = 0$

12.  $x^2 + 10x - 80 = 0$

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**GO**

Topic: Factoring Expressions

**Write each of the expressions below in factored form.**

13.  $x^2 - x - 132$

14.  $x^2 - 5x - 36$

15.  $x^2 + 5x + 6$

16.  $x^2 + 13x + 42$

17.  $x^2 + x - 56$

18.  $x^2 - x$

19.  $x^2 - 8x + 12$

20.  $x^2 - 10x + 25$

21.  $x^2 + 5x$