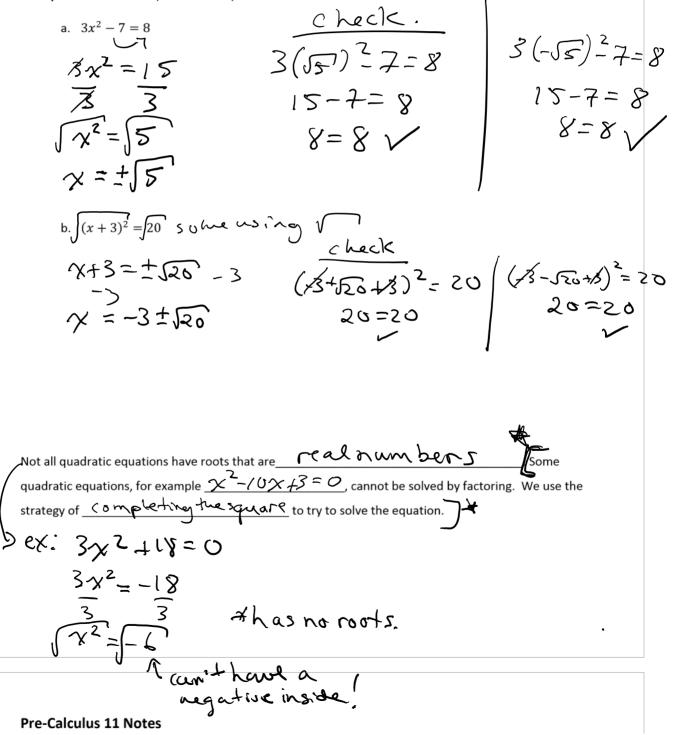
## 3.3 Completing the Square

Monday, November 30, 2015 8:37 AM

## Pre-Calculus 11 Notes 3.3 Using Square Roots to Solve Quadratic Equations & Completing the Square Name\_\_\_\_\_

 $\alpha \neq 0$ In a quadratic equation  $\alpha \alpha^2 + b \alpha + (=0)$ , when b = 0 it becomes the equation  $\alpha \alpha^2 + (=0)$ . If this equation has a solution, it can be solved by using square roots.

Example 1: Solve each equation. Verify the solution



Pre-Calculus 11 Notes

3.3 Using Square Roots to Solve Quadratic Equations & Completing the Square Name\_\_\_\_\_

Steps for Completing the Square: 
$$\chi^2$$
 – 10  $\chi$  + 3 =  $O$ 

1. Remove the coefficient of  $x^2$  term by multiplying or dividing no ne here

$$\chi^{2} - 10 + 3 = 0$$

2. Move the constant term to the other side of the equation.

$$\chi^2 - 10 x = -3$$

 $\frac{a | w a y s'}{2} = -5$   $(-5)^{2} = 25$ 3. Complete the square by dividing the *x* term by 2 and squaring it to both sides of the equation.

4. Factor the perfect square and simplify the side of the equation with constants.

$$(x-5)(x-5)^{-1}(x-5)^{-2} = 22$$

5. Lastly, take the square root of both sides.

$$\int ((\chi - 5)^2) = 22$$
  
$$\chi - 5 = \pm \sqrt{22}$$
  
$$\int (\chi = 5 \pm \sqrt{22})$$

Example 2: Solve each equation by completing the square.

a. 
$$x^{2} + 4x - 3 = 0$$
 You TRY.  
 $\frac{4}{2} = 2$   $x^{2} + 4x + 4 = 3$   
 $x^{2} + 4x + 4 = 3 + 4$   
 $\sqrt{(x + 2)^{2}} = \sqrt{7}$   
 $\frac{x + 2}{\sqrt{(x + 2)^{2}}} = \sqrt{7}$   
 $\frac{x + 2}{\sqrt{(x + 2)^{2}}} = \sqrt{7}$ 

**Pre-Calculus 11 Notes** 2.2 Heing Causes Boots to Salus Ausdratic Equations & Completing the Sauses

