Honors Algebra 2

Solving Quadratic Equations Using Non-Factoring Methods

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Name

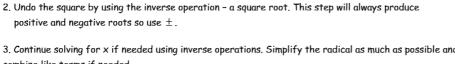
## I. Solving Quadratic Equations using Inverse Operations

The two types of equations we can solve using inverse operations generally look like:

$$ax^{2} + c = 0$$
 or  $a(x-h)^{2} + k = 0$ 

How to Solve a Quadratic Equation using Inverse Operations

- 1. Isolate the variable or expression that is being squared by using inverse operations.
- positive and negative roots so use  $\pm$ .



3. Continue solving for x if needed using inverse operations. Simplify the radical as much as possible and combine like terms if needed. Please note: In this unit we will find real and imaginary solutions. A quadratic equation always has 2 solutions; 2 real, 2 imaginary, or 1 real, repeated solution. What type of quadratic equation gives a repeated solutions? Perfect Square Trinomial X2+14x+49=0 (x+7)(x+7)=0Solve the equation using inverse operations. Write the answer in simplest form (no decimals)

5. 
$$x^2 + 14 = -22$$

6. 
$$2x^2 - 5 = 5x^2 + 37$$

7. 
$$\frac{1}{4}(x-5)^2 = 16$$

$$8. - (x+9)^2 = -12$$

## Additional Practice: Show all work and check you answer (below).

9. 
$$7x^2 + 16 = 9x^2 - 20$$

10. 
$$2(x+2)^2+72=0$$

11. 
$$(4x-5)^2-14=50$$

12. 
$$6x^2 + 65 = x^2 + 5$$

## Solutions

$$y. \quad X = \pm 3\sqrt{2}$$

10. 
$$X = -2 \pm 6i$$

11. 
$$X = -\frac{3}{4}, \frac{13}{4}$$

**12.** 
$$X = \pm 2i\sqrt{3}$$