

Solving Quadratic Equations



A **quadratic equation** is one which is of the form ax^2+bx+c where x is a variable and a , b and c are constants where a cannot be equal to 0.

EXAMPLES: x^2+5x+6 $-2x^2+10x-5$ $2x^2+5x-3$

Solving Quadratic Equations having Common Factors

Examples:

$$y^2+18y=0$$

$$y^2-12y=0$$

$$y(y+18)=0$$

As the equation has a common factor y

$$y(y-12)=0$$

$$y=0 \text{ \& } y+18=0 \rightarrow y=-18$$

Using zero product property

$$y=0 \text{ \& } y-12=0 \rightarrow y=12$$

Solving Quadratic Equations by Factoring

Examples:

We have $x^2+5x+6=0$. Now we need to find a pair of numbers having a product equal to $6 \times 1 = 6$ and the sum equal to 5. So, both numbers must be positive i.e. the pair of numbers is 2, 3.

$$x^2+5x+6=0 \rightarrow (x+2)(x+3)=0$$

$$\rightarrow x+2=0 \rightarrow x=-2$$

OR

$$x+3=0 \rightarrow x=-3$$

By using zero product property.

Meets: Common Core Standard High School – HSA-SSE.B.3a