

# Master &

## Algebra 2 2B Day 03: More on Complex Numbers

Solving Equations: Remember, when you solve a quadratic equation, how many solutions should you have?

You will have one of the following scenarios:

2 real rational solutions	2 real irrational solutions	2 imaginary solutions
Example: $x^2 - 4x + 3 = 0$ $(x-3)(x-1) = 0$ $x-3=0$ $x-1=0$ $x=3$ $x=1$	Example: $x^2 - 5 = 0$ $x^2 = 5$ $x = \pm\sqrt{5}$	Example: $x^2 + 5 = 0$ $x^2 = -5$ $x = \pm\sqrt{-5}$ $x = \pm i\sqrt{5}$

Practice: Solve each quadratic equation:

1. $x^2 + 64 = 0$ $x^2 = -64$ $x = \pm\sqrt{-64}$ $x = \pm 8i$	2. $x^2 + 121 = 0$ $x^2 = -121$ $x = \pm\sqrt{-121}$ $x = \pm 11i$	3. $x^2 + 3 = 0$ $x^2 = -3$ $x = \pm\sqrt{-3}$ $x = \pm i\sqrt{3}$
4. $6x^2 + 40 = -2$ $6x^2 = -42$ $x^2 = -7$ $x = \pm\sqrt{-7}$ $x = \pm i\sqrt{7}$	5. $-2x^2 - 8 = -2$ $-2x^2 = 6$ $x^2 = -3$ $x = \pm\sqrt{-3}$ $x = \pm i\sqrt{3}$	6. $\left(\frac{1}{3}x^2 = -15\right) \cdot 3$ $x^2 = -45$ $x = \pm\sqrt{-45}$ $x = \pm i\sqrt{9 \cdot 5}$ $x = \pm 3i\sqrt{5}$
7. $4x^2 + 15 = -9$ $4x^2 = -24$ $x^2 = -6$ $x = \pm\sqrt{-6}$ $x = \pm i\sqrt{6}$	8. $-\frac{2}{3}x^2 - 1 = 17$ $-\frac{2}{3}x^2 = 18$ $18\left(-\frac{3}{2}\right)$ $x^2 = -27$ $x = \pm\sqrt{-27}$ $x = \pm i\sqrt{9 \cdot 3}$ $x = \pm 3i\sqrt{3}$	9. $-2(x-5)^2 = 12$ $(x-5)^2 = -6$ $x-5 = \pm\sqrt{-6}$ $x = 5 \pm i\sqrt{6}$