

Calculator Instructions for Complex Numbers



Change **MODE** from Real to a+bi
2nd **MODE** to save
2nd **.** is "i"



ADD $(4 - 3i) + (2 + 6i)$

SUBTRACT $(4 - 3i) - (2 + 6i)$

MULTIPLY $(4 - 3i)(2 + 6i)$

Complex Numbers

The imaginary number is:

Complex numbers are numbers that can be written in the form:

When equations with imaginary solutions are solved, the answers always come in conjugate pairs:

Operations with complex numbers

Example 3

Add, subtract, and multiply complex numbers the same way you do real numbers. But whenever you see i^2 , replace it with -1 .

A] $(4 - 3i) + (4 + 3i)$
 B] $(4 - 3i) - (4 + 3i)$

C] $(4 - 3i)(4 + 3i)$
 D] $(4 - 3i)^2$

Example 1

Solving quadratic equations with imaginary solutions

Solve using the square root method. Give your answers in a+bi form.

A] $(x - 3)^2 + 4 = -8$

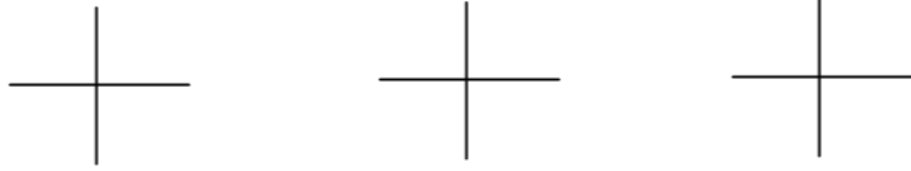
B] $(2x + 6)^2 + 9 = 0$

Example 2

Using the graph to determine if solutions are real or imaginary

Quadratics with real solutions have one or two x-intercepts. Quadratics with imaginary solutions have no x-intercepts.

A] $y = -\frac{1}{3}x^2 - 3$
 B] $y = -(x - 10)^2 + 5$
 C] $y = -5x^2 + 25$



D] $y = \frac{1}{2}(x + 3)(x - 12)$
 E] $y = 5(x + 4)^2 + 20$
 F] $y = 2(x - 3)^2$

