

II. Operations with Complex Numbers (Pages 132–133)

To add two complex numbers, . . .

What you should learn
How to add, subtract, and multiply complex numbers

To subtract two complex numbers, . . .

The additive identity in the complex number system is _____.

The additive inverse of the complex number $a + bi$ is

_____.

Example 1: Perform the operations:

$$(5 - 6i) - (3 - 2i) + 4i$$

To multiply two complex numbers $a + bi$ and $c + di$, . . .

Example 2: Multiply: $(5 - 6i)(3 - 2i)$

III. Complex Conjugates (Page 134)

The product of a pair of complex conjugates is a(n)

_____ number.

What you should learn
How to use complex conjugates to write the quotient of two complex numbers in standard form

To find the quotient of the complex numbers $a + bi$ and $c + di$, where c and d are not both zero, . . .

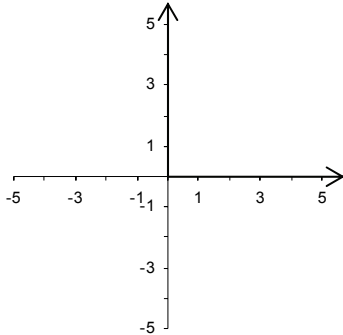
Example 3: Divide $(1 + i)$ by $(2 - i)$. Write the result in standard form.

IV. Fractals and the Mandelbrot Set (Pages 135–136)

The **complex plane** is . . .

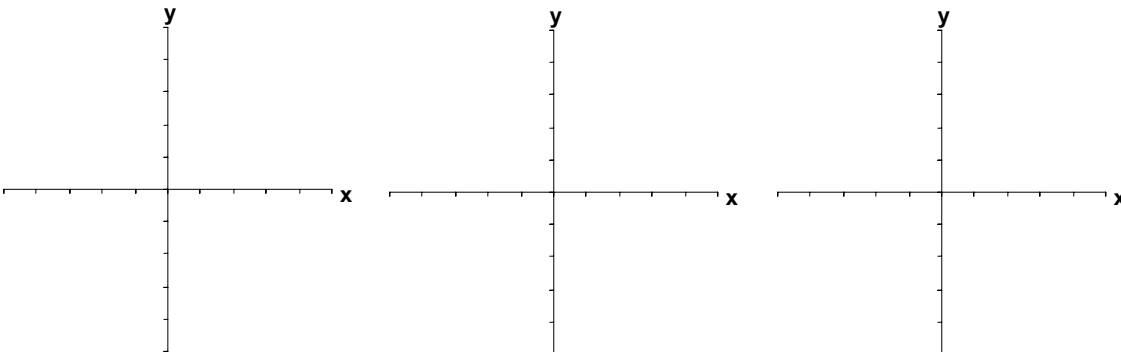
What you should learn
How to plot complex numbers in the complex plane

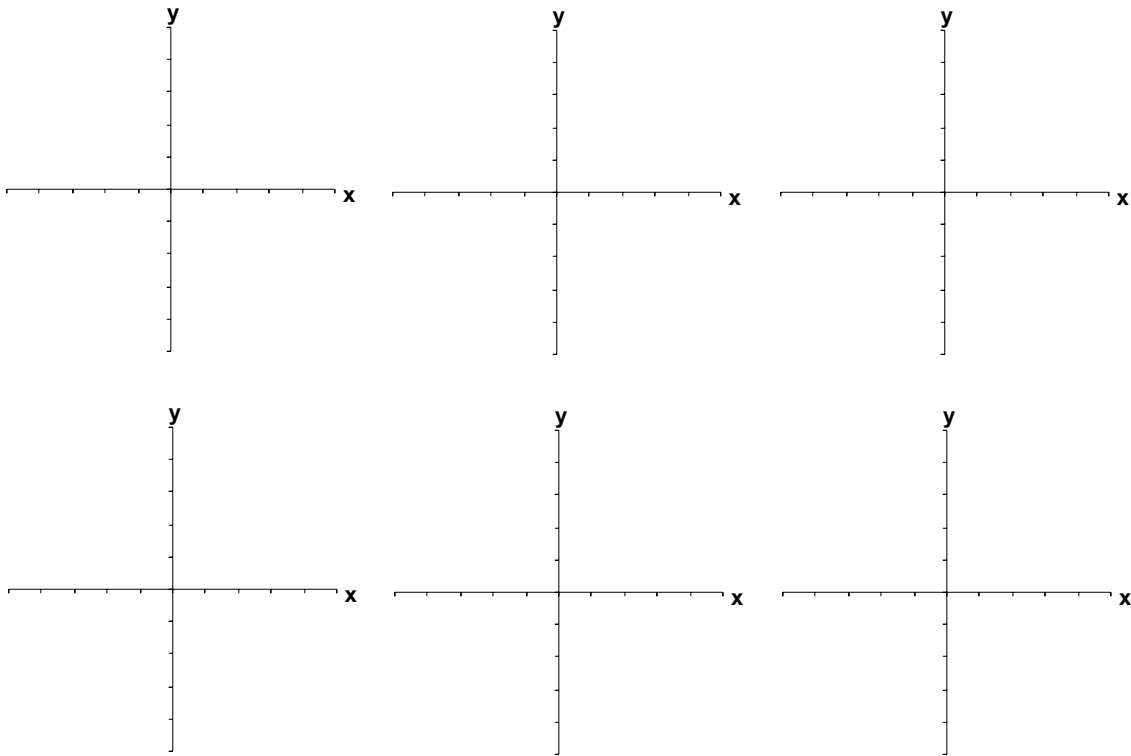
On the complex plane shown below, (a) label the real axis, (b) label the imaginary axis, and (c) plot and label the complex numbers $-2 - 3i$ and $4 + i$.



Let c represent a complex number. Describe how to tell whether or not c belongs to the Mandelbrot Set.

Describe how the Mandelbrot Set could be graphed.



Additional notes**Homework Assignment**

Page(s)

Exercises