



Two complex numbers  $a + bi$  and  $c + di$ , written in standard form, are equal to each other if . . .

## II. Operations with Complex Numbers (Pages 181–182)

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 and Division (Page 183)

The product of a pair of complex conjugates is a(n) \_\_\_\_\_ number.

***What you should learn***  
How to use complex conjugates to divide complex numbers

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

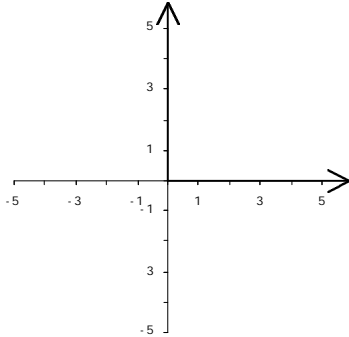
**Example 3:** Divide  $(1 + i)$  by  $(2 - i)$ . Write the result in standard form.

**IV. Applications of Complex Numbers** (Pages 184–185)

The **complex plane** is . . .

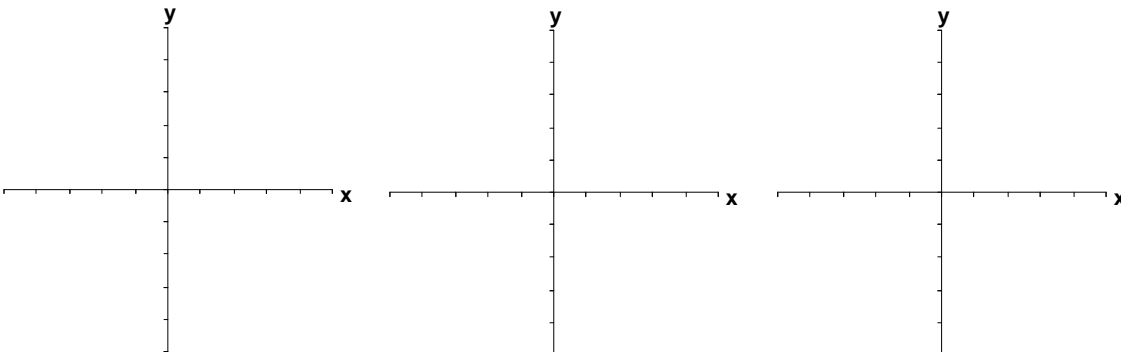
*What you should learn*  
How to plot complex numbers in the complex plane

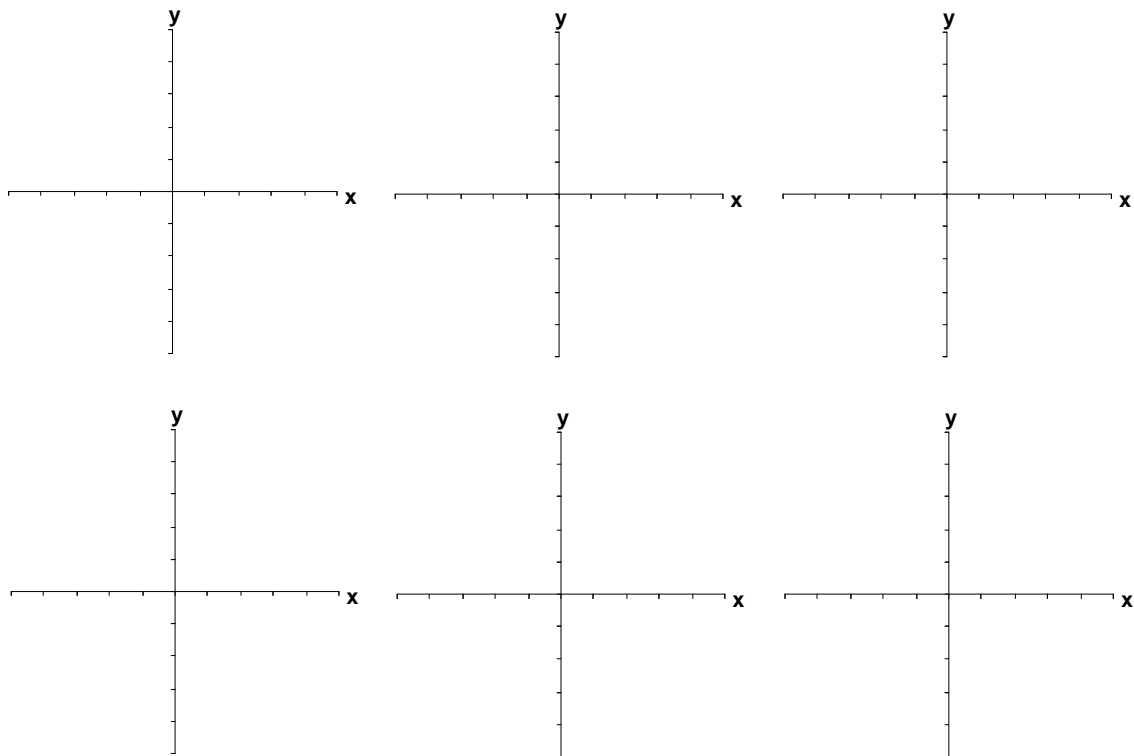
On the complex plane shown below, (a) label the real axis, (b) label the imaginary axis, and (c) plot and label the complex numbers  $-2 - 3i$  and  $4 + i$ .



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