



**II. Operations with Complex Numbers** (Pages 175–176)

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 177)

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

\_\_\_\_\_ number.

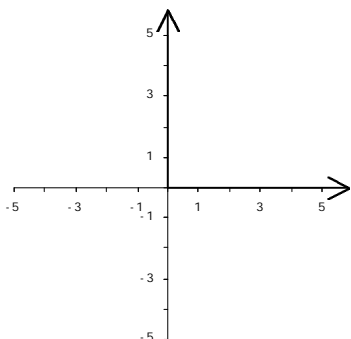
***What you should learn***  
How to use complex conjugates to divide complex numbers

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 178–179)

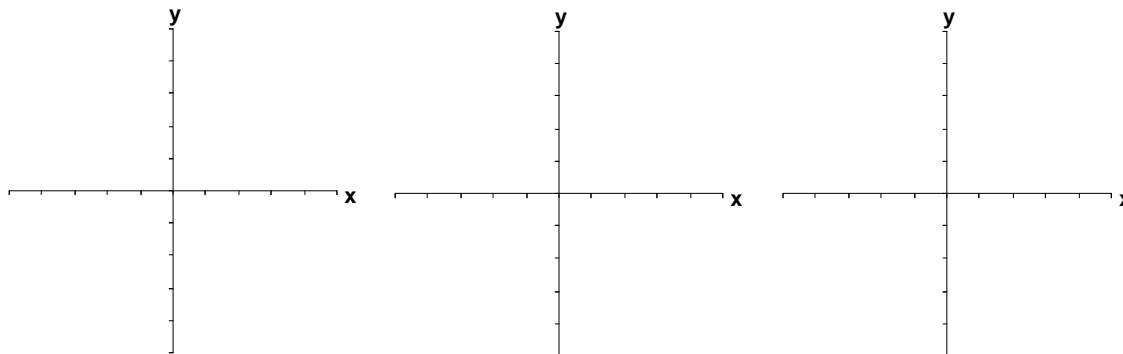
On the complex plane shown below, (a) label the real axis, (b) label the imaginary axis, and (c) plot and label the complex numbers  $-2 - 3i$  and  $4 + i$ .

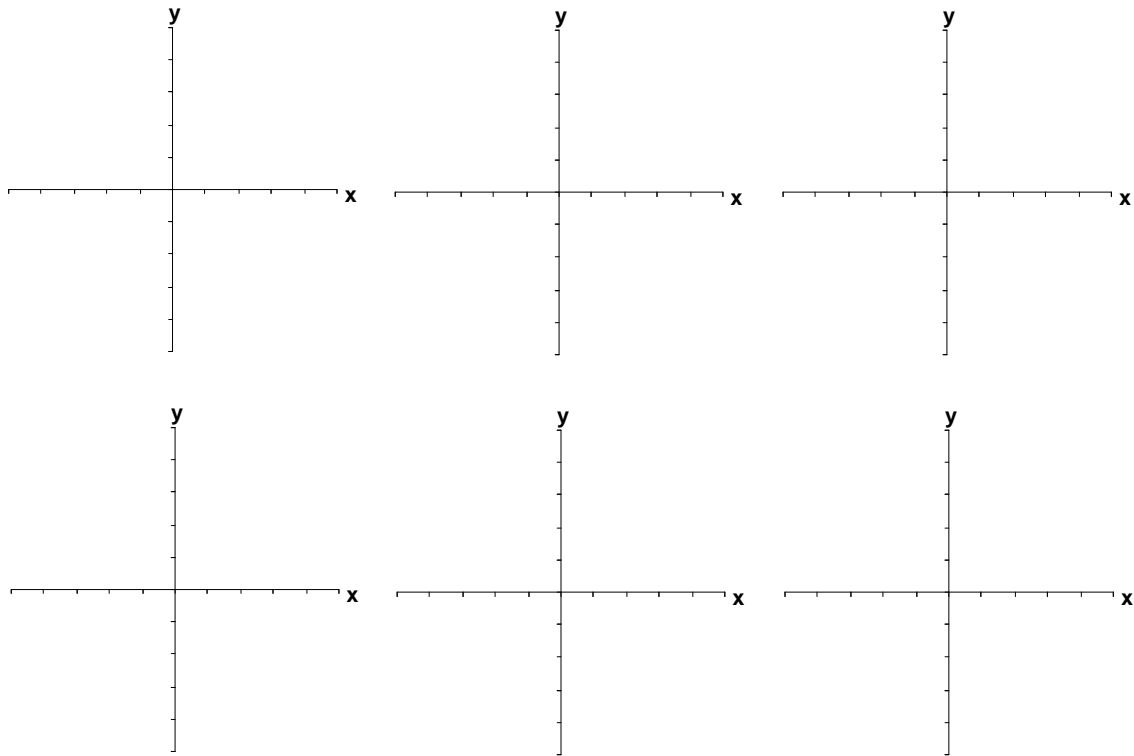
***What you should learn***

How to plot complex numbers in the complex plane

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