

Section 4.3 Trigonometric Form of a Complex Number

Objective: In this lesson you learned how to multiply and divide complex numbers written in trigonometric form.

Course Number

Instructor

Date

Important Vocabulary

Define each term or concept.

Real axis**Imaginary axis****Absolute value of a complex number $a + bi$**

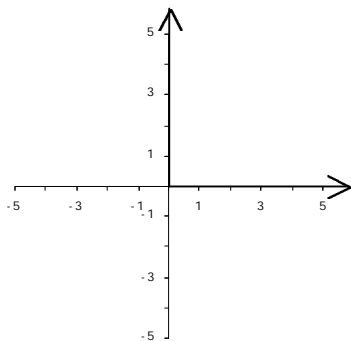
I. The Complex Plane (Page 324)

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 $4 + i$.



The absolute value of the complex number $z = a + bi$ is given by

$$|a + bi| = \sqrt{\quad}$$

II. Trigonometric Form of a Complex Number

(Pages 325–326)

The **trigonometric form of a complex number** $z = a + bi$ is

$$z = \quad, \text{ where}$$

What you should learn

How to write the trigonometric forms of complex numbers

$$a = \underline{\hspace{2cm}},$$

$$b = \underline{\hspace{2cm}},$$

$$r = \sqrt{\underline{\hspace{2cm}}}, \text{ and}$$

$$\tan \mathbf{q} = \underline{\hspace{2cm}}.$$

The number r is the _____ of z , and \mathbf{q} is called an _____ of z .

The trigonometric form of a complex number is also called the _____.

III. Multiplication and Division of Complex Numbers (Pages 327–328)

Let $z_1 = r_1(\cos \mathbf{q}_1 + i \sin \mathbf{q}_1)$ and $z_2 = r_2(\cos \mathbf{q}_2 + i \sin \mathbf{q}_2)$ be complex numbers. Then:

$$z_1 z_2 = \underline{\hspace{4cm}}$$

$$z_1 / z_2 = \underline{\hspace{4cm}}$$

Describe how to find the product of two complex numbers.

Describe how to find the quotient of two complex numbers.

What you should learn
How to multiply and divide complex numbers written in trigonometric form

Homework Assignment

Page(s)

Exercises