

Math 1513 - College Algebra

Written Assignment 2 - Due 2011.06.18

Directions: Please answer the following question in complete sentences. Be sure to label all geometric objects in any illustrations. I will accept an answer in a scanned image format, in a Word document or as a pdf.

Question: While it is a simple concept for real numbers, the square root of a complex number is much more involved due to interplay between its real and imaginary parts. For $z = a + bi$ the square root of z can be found using the formula

$$\sqrt{z} = \frac{1}{\sqrt{2}} \left(\sqrt{|z| + a} \pm i \sqrt{|z| - a} \right),$$

where the sign is chosen to match the sign of b . Use the formula to find \sqrt{z} if $z = 7 + 8i$.