Questions: Introduction to complex numbers

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Summary

A selection of questions for the study guide on introduction to complex numbers.

Before attempting these questions, it is highly recommended that you read Guide: Introduction to complex numbers.

Q1

Using complex numbers, find solutions to the following equations.

1.1. $x^2 = -1$

1.2. $x^2 + 9 = 0$

1.3. $y^2 + 160 = 16$

1.4. $x^2 - 1 = 0$

Q2

For each of the complex numbers below, give their real and imaginary parts. (In this question, a, b are real numbers.)

2.1. $z_1 = 2 + 3i.$

2.2. $z_2 = -23 + 32i.$

2.3. $z_3 = 3 - 3i.$

2.4. $z_4 = 3i.$

2.5. $z_5 = -3 - 2i.$

2.6. $z_6 = a + 2bi.$

2.7. $z_7 = 2.$

2.8. $z_8 = 3/2 + 2i/3.$

2.9. $z_9 = 22 - 33i$.

2.10. $z_{10} = 333 + 22i$.

2.11. $z_{11} = 2i - 2$.

2.12. $z_{12} = -3i - 2$.

Q3

Find the complex conjugate for every complex number in Q2.

Q4

Draw z_1, z_4, z_5, z_7 and their conjugates on the same Argand diagram, making sure to label both your axes and each complex number on the diagram. Can you spot a relationship between a complex number and its conjugate, with respect to the Argand diagram?

After attempting the questions above, please click this link to find the answers.

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v1.0: initial version created 10/24 by tdhc.

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