

# 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?

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[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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