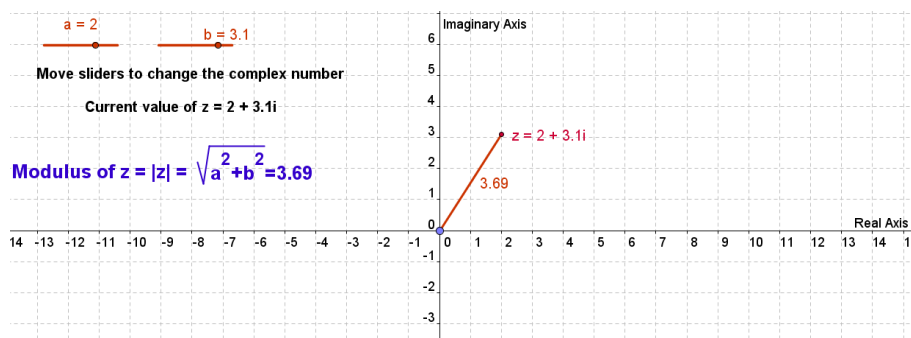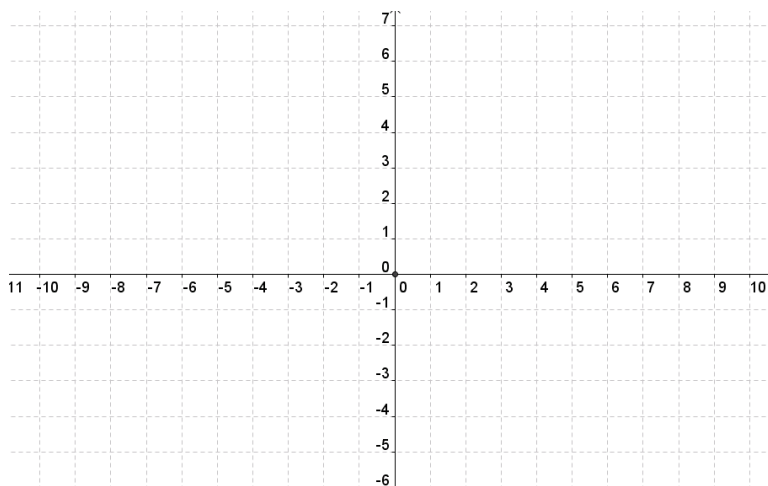# Student Activity: To investigate the Argand diagram and modulus of complex numbers

Use in connection with the interactive file, 'Argand diagram and modulus of a complex number', on the Students CD.

1. Place the following numbers on the Argand diagram and calculate the modulus in each case.

		Modulus =$|z|$
a.	$z_1 = 3 + 2i$	
b.	$z_1 = 2 + 3i$	
c.	$z_1 = -3 + 4i$	
d.	$z_1 = -2 - 4i$	
e.	$z_1 = i$	
f.	$z_1 = -2 - i$	
g.	$z_1 = 1 + \sqrt{25}\, i$	

2. Write in your own words, what is meant by the modulus of a complex number.

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3. What is the mathematical notation for the modulus of a complex number z?
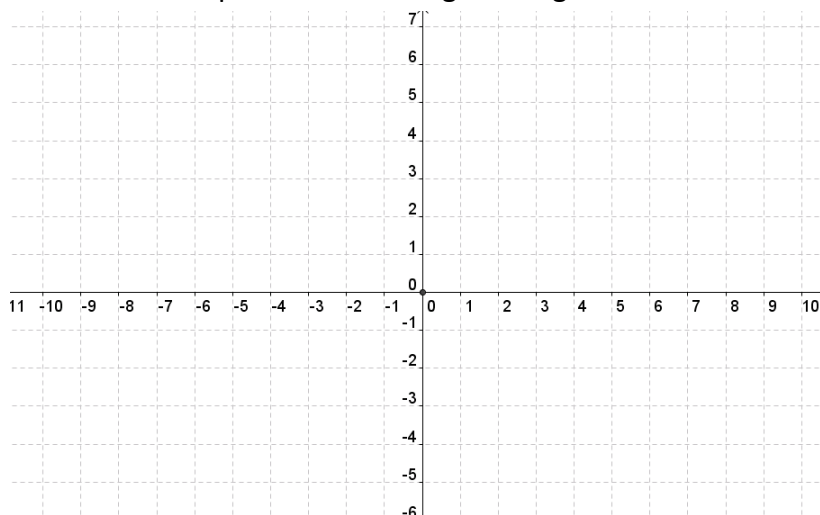
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4. List four complex numbers with a modulus equal to 4.

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5. Is $|z_1| + |z_2|$ equal to $|z_1 + z_2|$? Always? Sometimes? Never?   Explain using examples plotted on the Argand diagram

6. What do you notice about $|a+bi|$ and $|a-bi|$?

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7. Describe how you could show all the complex numbers that have a modulus of 3.

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8. What do all numbers on the Real Axis of the Argand diagram have in common?

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9. What do all numbers on the Imaginary Axis of the Argand diagram have in common?

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