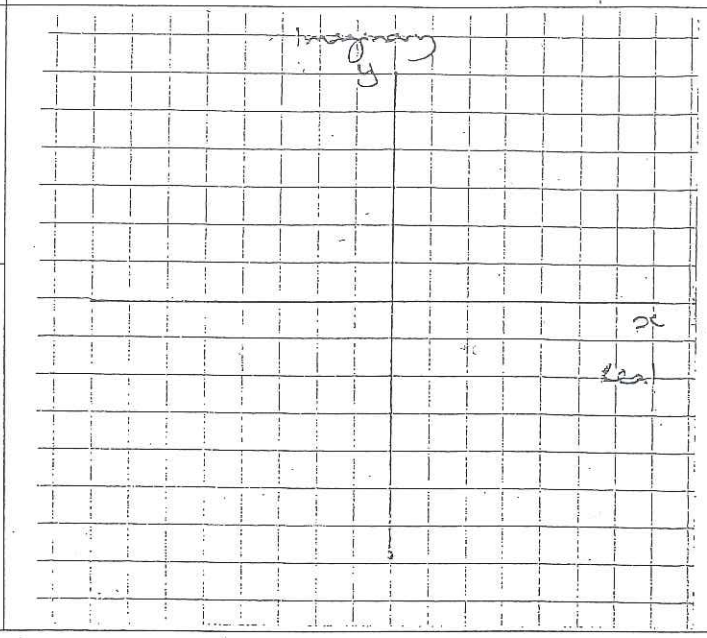
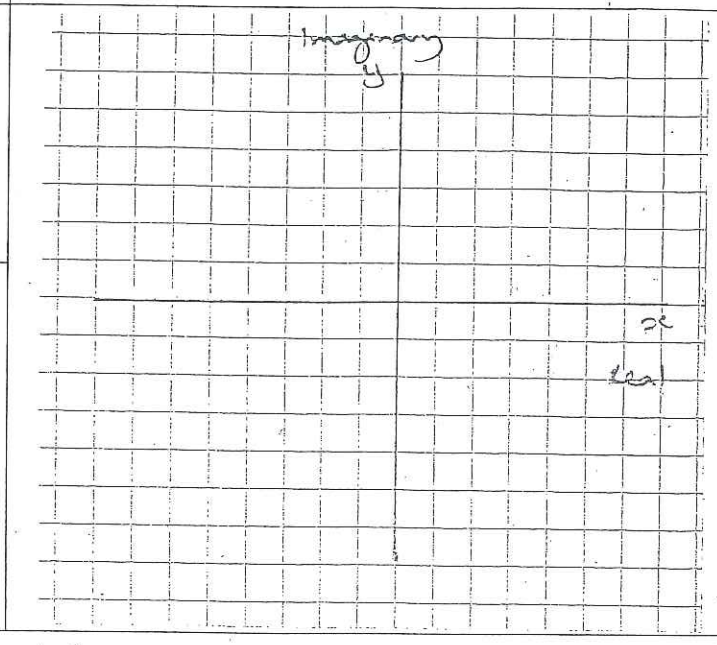
Complex number:	Draw the argand diagram below
Modulus	
Argument	

Complex number:	Draw the argand diagram below
Modulus	
Argument	

Exercise 1D

1 Show these numbers on an Argand diagram.

a $7 + 2i$ b $5 - 4i$

c $-6 - i$ d $-2 + 5i$

e $3i$ f $\sqrt{2} + 2i$

g $-\frac{1}{2} + \frac{5}{2}i$ h -4

2 Given that $z_1 = -1 - i$, $z_2 = -5 + 10i$ and $z_3 = 3 - 4i$,

a find z_1z_2, z_1z_3 and $\frac{z_2}{z_3}$ in the form $a + ib$.

b show z_1, z_2, z_3, z_1z_2, z_1z_3 and $\frac{z_2}{z_3}$ on an Argand diagram.

3 Show the roots of the equation $x^2 - 6x + 10 = 0$ on an Argand diagram.

4 The complex numbers $z_1 = 5 + 12i$, $z_2 = 6 + 10i$, $z_3 = -4 + 2i$ and $z_4 = -3 - i$ are represented by the vectors $\overrightarrow{OA}$, $\overrightarrow{OB}$, $\overrightarrow{OC}$ and $\overrightarrow{OD}$ respectively on an Argand diagram. Draw the diagram and calculate $|\overrightarrow{OA}|$, $|\overrightarrow{OB}|$, $|\overrightarrow{OC}|$ and $|\overrightarrow{OD}|$.

5 $z_1 = 11 + 2i$ and $z_2 = 2 + 4i$. Show z_1, z_2 and $z_1 + z_2$ on an Argand diagram.

6 $z_1 = -3 + 6i$ and $z_2 = 8 - i$. Show z_1, z_2 and $z_1 + z_2$ on an Argand diagram.

7 $z_1 = 8 + 4i$ and $z_2 = 6 + 7i$. Show z_1, z_2 and $z_1 - z_2$ on an Argand diagram.

8 $z_1 = -6 - 5i$ and $z_2 = -4 + 4i$. Show z_1, z_2 and $z_1 - z_2$ on an Argand diagram.

1.5 You can find the value of r, the modulus of a complex number z, and the value of θ, the argument of z.

- Consider the complex number $3 + 4i$, represented on an Argand diagram by the point A, or by the vector $\overrightarrow{OA}$.

  The length OA or $|\overrightarrow{OA}|$, the magnitude of vector $|\overrightarrow{OA}|$, is found by Pythagoras' theorem:

  $|\overrightarrow{OA}| = \sqrt{3^2 + 4^2} = \sqrt{25} = 5$

  This number is called the modulus of the complex number $3 + 4i$.