**Complex Number 1**

**1.** Given that , express the complex number z in the form .

**2.** Calculate, in the form a + ib, where , the square root of .

**Method 1**

From (2),

Substitute (3) in (1),

Since , has no solution,

From (3),

**Method 2**

**3.** Express the complex number in its polar form. Hene, find and .

,

, by de Moivre’s Theorem

**4.** If is a root of the equation , express

as a product of two quadratic factors. Hence, find the complex roots of the equation

.

If is a root, then is also a root.

Then

is a factor of .

By division, .

Hence

The given equation then becomes:

.

**5.** Solve the equation .

By de Moivre’s Theorem, we have:

, where k = 0,1,2,3,4.

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