**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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