

# LETTER OF COLOBRATION (10.11.2021)

3. Solve the equation  $x^3 + 4x^2 + 5x - 2 = 0$ , one of whose roots is  $-1 + i$ .

Solution:  
The given equation is  $x^3 + 4x^2 + 5x - 2 = 0$  --- (1)  
One root of the equation is  $-1 + i$   
By result  
 $(-1 - i)$  is also a root of equation (1)  
Let  $\alpha, \beta$  be the remaining roots  
Sum of the roots =  $-4/1$   
 $\alpha + \beta - 1 + i - 1 - i = -4$   
 $\alpha + \beta - 2 = -4$   
 $\alpha + \beta = -2$  --- (2)  
Product of the roots =  $-2/1$

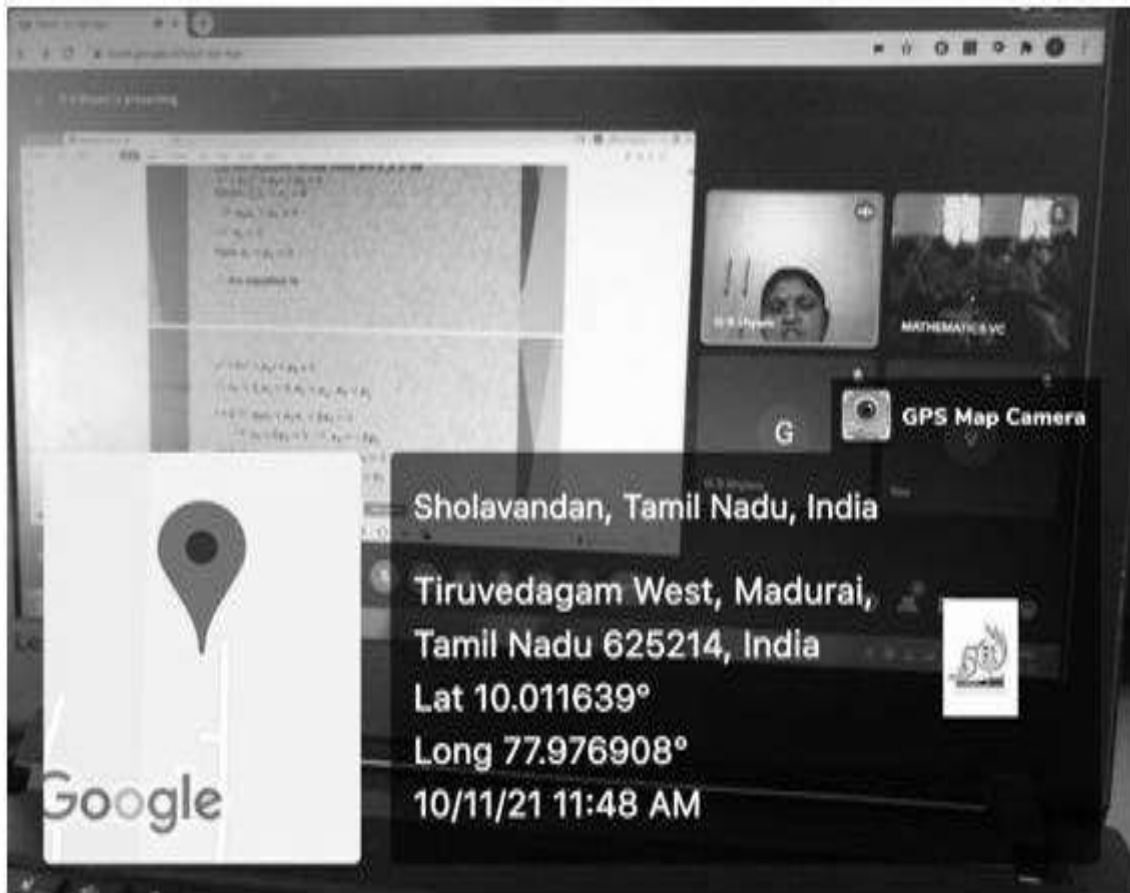
$(\alpha\beta)(-1 + i)(-1 - i) = -2$   
 $(\alpha\beta)(1 + 1) = -2$

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Tamil Nadu 625214, India  
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