

CENG 384 - Signals and Systems for Computer Engineers
Spring 2023
Homework 1

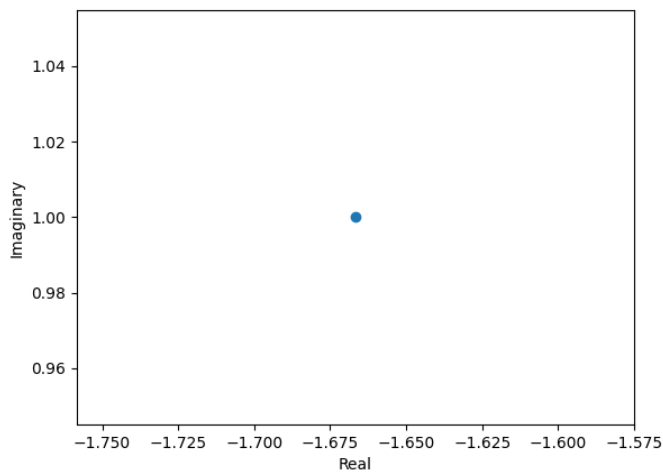
Geçit, Emre
e2521581@ceng.metu.edu.tr

LastName2, FirstName2
xxxxxxx@ceng.metu.edu.tr

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1.

$$\begin{aligned}z &= x + yj \implies \bar{z} = x - yj \\2z + 5 &= j - \bar{z} \\2(x + yj) + 5 &= j - (x - yj) \\2x + 5 + 2yj &= (1 + y)j - x \\y = 1, x &= -5/3 \\z &= -5/3 + j \\|z|^2 &= 25/9 + 1 = 26/9\end{aligned}$$



(b)

(c)

2.

3. (a)

(b)

4. (a)

(b)

(c)

5. (a)

(b)

6. (a)

(b)

7. (a)

(b)