18.03 Differential Equations: Week 4

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Progress Update

Over the past week we have covered:

1. Complex Arithmetic

Complex Arithmetic

We received a run-down of what complex numbers are and how they function"

1. Some complex number $z = a + bi$
2. $i^2 = -1$
3. $z + z' = (a + bi) + (a' + b'i) = (a + a') + (b + b')i$
4. Multiplication occurs by FOIL
5. Division of z by z' occurs by multiplying by 1 in the form of $\bar{z'}$

Euler's formula

Euler's formula is defined

$$e^{i\theta} = \cos(\theta) + i\sin(\theta) \tag{1}$$

Example Problem

Consider the following example problem from the text: **Problem:** If $\bar{z} = z$,what does that tell us about the value of $z = a + bi$?