18.04 Recitation 1
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1.1. Is is true that $e^{\log(z)} = z$? Is is true that $\log(e^z) = z$?

1.2. If you know one value of $\log(z)$, what are all the other values?

2. Let $z_1 = 2e^{i\pi/3}$ and $z_2 = 3 + 4i$.

2.1. Compute $\log(z_1)$. What is the value in the principal branch?

2.2. Compute $\log(z_2)$. What is the value in the principal branch?

3.1. Is z^a single valued or multi-valued? Why?

3.2. Suppose $z \neq 0$. Is z^a single valued or multi-valued when a is an integer?

3.3. If a is a real number, what do all the a^{th} powers of z have in common?

3.4. If a is a purely imaginary number, what do all the a^{th} powers of z have in common?

4. Let $z_1 = 2e^{i\pi/3}$ and $z_2 = 3 + 4i$.

4.1. Compute $z_1^{z_2}$.

4.2. Compute $z_1^{1/4}$. How many distinct values do you get? Plot all these values in the complex plane.

18.04 Complex Variables with Applications

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