

HINTS OF HW2
MATH 185

16(c): You can use the ratio test in Problem 17.

25(b): You might need to use the following (which you can use without proof in your solution)

- $\frac{1}{1-z} = \sum_{n=0}^{\infty} z^n$ for any $|z| < 1$.
- Let $\{f_n: [a, b] \rightarrow \mathbb{C}\}_{n=0}^{\infty}$ be a sequence of complex-valued functions. Suppose that

$$\int_a^b \left(\sum_{n=0}^{\infty} |f_n(t)| \right) dt < +\infty,$$

then we have

$$\int_a^b \left(\sum_{n=0}^{\infty} f_n(t) \right) dt = \sum_{n=0}^{\infty} \left(\int_a^b f_n(t) dt \right).$$

25 (c): Consider $\frac{1}{(z-a)(z-b)} = \frac{1}{b-a} \left(\frac{1}{z-b} - \frac{1}{z-a} \right)$.