HINTS OF HW2
MATH 185

16(e): 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 $\{f_n \colon [a,b] \to \mathbb{C}\}_{n=0}^{\infty}$ be a sequence of complex-valued functions. Suppose that
$$\int_a^b \Big(\sum_{n=0}^{\infty} |f_n(t)| \Big) dt < +\infty,$$
then we have
$$\int_a^b \Big(\sum_{n=0}^{\infty} f_n(t) \Big) dt = \sum_{n=0}^{\infty} \Big(\int_a^b f_n(t) dt \Big).$$

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