

If the Laurent series expansion of  $f(z) = \frac{z}{(z-i)(z+1)^2}$  about  $z = -1$  is denoted by

$$\sum_{n=-\infty}^{n=\infty} a_n (z+1)^n, \text{ find } \sum_{n=-\infty}^{n=\infty} a_n. \text{ [100 台大機械 6(3)]}$$

[解]  $\frac{z}{(z-i)(z+1)^2} = \sum_{n=-\infty}^{\infty} a_n (z+1)^n$

令  $z = 0$  代入得  $\frac{0}{(0-i)(0+1)^2} = \sum_{n=-\infty}^{\infty} a_n \Rightarrow \sum_{n=-\infty}^{\infty} a_n = 0$



南臺科技大學

Southern Taiwan University of Science and Technology