

Find $\oint_C \frac{1}{z(z-1)} dz$, where C is the circle $|z-1|=6$, by means of the residue theorem. [94 中央機械 9(b)]

[解]在 C 內有單的極點 $z = 0, 1$

$$R_0 = \frac{1}{2z-1} \Big|_{z=0} = -1, \quad R_1 = \frac{1}{2z-1} \Big|_{z=1} = 1$$

$$\oint_C \frac{1}{z(z-1)} dz = 2\pi i(R_0 + R_1) = 0$$



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