Find the value of $\oint_C \dfrac{z^3-6}{2z+i}\,dz$ where C is a unit circle. (counter clock wise). [92 中正機械 7]

[解](1) C內若不含 $-\dfrac{i}{2}$ 時，積分值為 0

(2) C內若含 $-\dfrac{i}{2}$ 時，

$$R_{-\frac{i}{2}} = \left.\frac{z^3-6}{2}\right|_{z=-\frac{i}{2}} = \frac{\frac{1}{8}i-6}{2} = \frac{i}{16}-3$$

$$\therefore \oint_C \frac{z^3-6}{2z+i}\,dz = 2\pi i \cdot R_{-\frac{i}{2}} = 2\pi i\left(\frac{i}{16}-3\right) = \pi\left(-\frac{1}{8}-6i\right)$$