



$$\oint_C \mathbf{G} \cdot d\mathbf{r} = \iint_{s_1} \text{curl } \mathbf{G} \cdot d\mathbf{A}$$

$$= \iint_{s_1} \mathbf{F} \cdot \mathbf{n} \, ds$$

$$\oint_{-C} \mathbf{G} \cdot d\mathbf{r} = \iint_{s_2} \mathbf{F} \cdot \mathbf{n} \, ds$$

$$\Rightarrow \iint_{s_1} + \iint_{s_2} = 0$$