

$$f(x,y) = \begin{pmatrix} -10 \\ 0 \end{pmatrix}$$

$$\vec{\gamma}(t) = \begin{pmatrix} 0 \\ 0 \end{pmatrix} + t \cdot \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$\hookrightarrow \frac{d\vec{\gamma}}{dt} = \begin{pmatrix} 1 \\ 1 \end{pmatrix} \rightarrow d\gamma = \begin{pmatrix} 1 \\ 1 \end{pmatrix} \cdot dt$$

$$\int_{\gamma} f(x,y) d\vec{s} = \int_0^5 f(t,t) \cdot \begin{pmatrix} 1 \\ 1 \end{pmatrix} dt = \int_0^5 \begin{pmatrix} -10 \\ 0 \end{pmatrix} \cdot \begin{pmatrix} 1 \\ 1 \end{pmatrix} dt$$

$$= -10t \Big|_0^5 = \underline{\underline{-50}}$$