

① Let C be the oriented curve HW44
(or path) $\vec{r} = \langle t, t^2, t^3 \rangle$ from $t=0$ to $t=1$
and let $\vec{F} = \langle P, Q, R \rangle$ where $P = y$, $Q = \frac{1}{x}$,
and $R = z^2$. Find $\int_C \vec{F} \cdot d\vec{r}$.

② Let C be the path (or oriented curve)
 $\vec{r} = e^t \langle \cos t, \sin t \rangle$ from $t=0$ to $t=-\infty$.
Let $\vec{F} = \langle P, Q \rangle$ where $P = -y^3$ & $Q = +x^3$.
Find $\int_C \vec{F} \cdot d\vec{r}$.