8) $\int_C \vec{F} \cdot d\alpha$

$\frac{d\vec{\alpha}}{dt} \cdot dt = (-\sin t, \cos t, 2)\, dt$ | $F(\alpha(t)) = (-\sin t, \cos t, -t)$

Dus: $\int_0^{2\pi} F \cdot \frac{d\alpha}{dt} \cdot dt = \int_0^{2\pi} (-2t + 1) \cdot dt = -4\pi^2 + 2\pi$