Special Problem 2-5.19

Say we know that:

$$\int_C \mathbf{A}(\bar{r}) \cdot \overline{d\ell} = -6$$

where the vector field $\mathbf{A}(\bar{r}) = \nabla\, r^2 \cos\theta \sin\phi$.

The contour C is a **circular arc** (radius 2), centered at the origin, and lying **entirely** on the ***y-z* plane** (see below).

Note the **end** point (denoted as P_α) of contour C lies on the ***z*-axis**.

> Determine the position vector that indicates the location of the **starting** point (P_χ) of contour C.