

Parametric equations for  $C$  are  $x = 4 \cos t$ ,  $y = 4 \sin t$ ,  
 $-\frac{\pi}{2} \leq t \leq \frac{\pi}{2}$ . Then

$$\begin{aligned}\int_C xy^4 ds &= \int_{-\pi/2}^{\pi/2} (4 \cos t)(4 \sin t)^4 \sqrt{(-4 \sin t)^2 + (4 \cos t)^2} dt \\ &= \int_{-\pi/2}^{\pi/2} 4^5 \cos t \sin^4 t \sqrt{16(\sin^2 t + \cos^2 t)} dt \\ &= 4^5 \int_{-\pi/2}^{\pi/2} (\sin^4 t \cos t)(4) dt = (4)^6 \left[ \frac{1}{5} \sin^5 t \right]_{-\pi/2}^{\pi/2} \\ &= \frac{2 \cdot 4^6}{5} = \frac{8192}{5} = 1638.4\end{aligned}$$