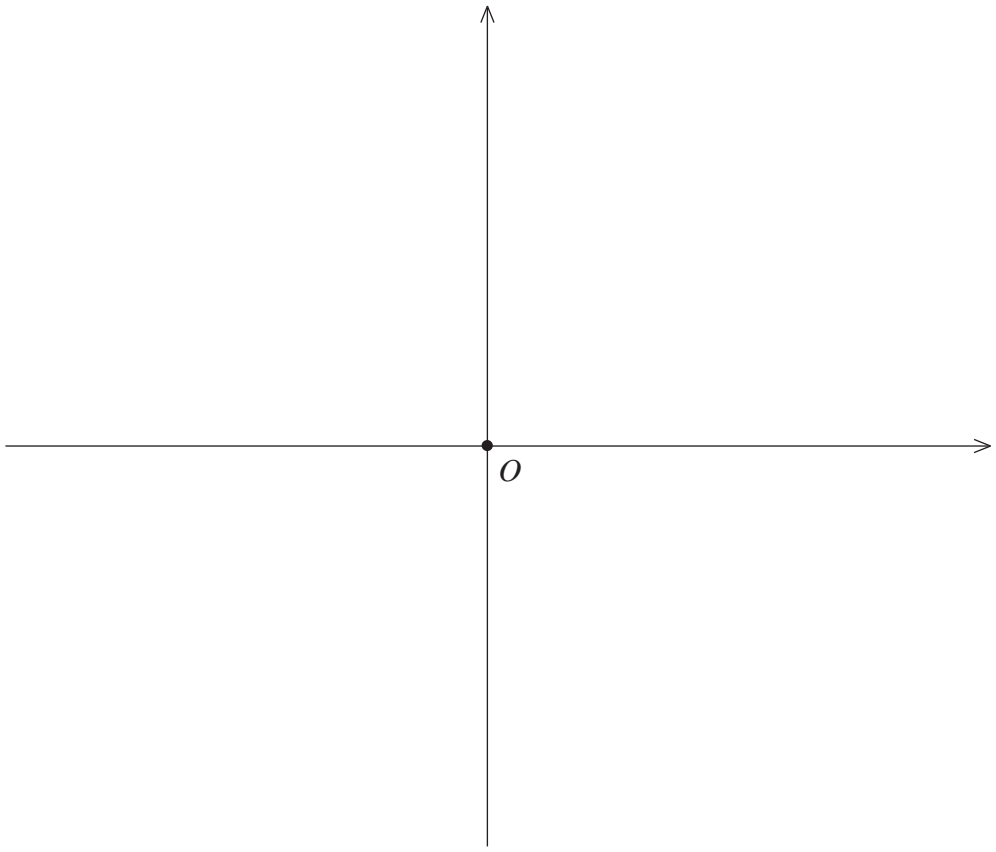
Quiz **Name**

1. Consider the polar function $r = f(\theta) = \frac{\sin\theta}{\cos^2\theta}$. Convert it to Cartesian coordinates and then sketch its graph in the space provided.



2. Evaluate the integral $\int_0^{\frac{\pi}{4}} \frac{1}{2}\left(\frac{\sin\theta}{\cos^2\theta}\right)^2 d\theta$ by making use of the Cartesian connection. What does it mean in the context of the graph.