1. (3 points) Identify the curve by finding a Cartesian equation for the curve.
\[ \theta = \frac{\pi}{3}. \]

\[ \tan \theta = \frac{y}{x} \]

\[ \tan \frac{\pi}{3} = \frac{\sin \frac{\pi}{3}}{\cos \frac{\pi}{3}} = \frac{\sqrt{3}}{2} \cdot \frac{1}{2} = \sqrt{3}. \]

\[ \Rightarrow \tan \frac{\pi}{3} = \frac{y}{x} \iff \sqrt{3} = \frac{y}{x} = 0 \quad y = \sqrt{3}x. \]

thus \( \theta = \frac{\pi}{3} \) is a straight line through the origin.

2. (7 points) Sketch the curve with the given polar equation by first sketching the graph of \( r \) as a function of \( \theta \) in Cartesian coordinates.
\[ r = -2\sin \theta. \]