1. Show that the conic with focus at the origin, directrix \( y = \pm d \), and eccentricity \( e \) has polar equation

\[
r = \frac{ed}{1 \pm e \sin \theta}.
\]

2. Graph the conic

\[
r = \frac{8}{4 + \sin \theta},
\]

placing the pole at a focus and the polar axis along the positive \( x \)-axis. What is the value of \( a \) in the cartesian form of the conic?