1. Find the fixed points, investigate the stability of each, and sketch the phase portrait for
   each of the following equations:

   (a) \( x' = 4x^2 - 16 \)
   (b) \( x' = x - x^3 \)
   (c) \( x' = -x - x^3 \)
   (d) \( x' = x^2(4 - x^2) \)
   (e) \( x' = 1 - 2\cos x \)

2. Find the fixed points and investigate the stability of each for each of the following systems:

   (a) \[
   \begin{align*}
   x' &= y \\
   y' &= 2x + y
   \end{align*}
   \]
   (b) \[
   \begin{align*}
   x' &= -3y \\
   y' &= 2x + 5y
   \end{align*}
   \]
   (c) \[
   \begin{align*}
   x' &= x + y \\
   y' &= -2x + 3y
   \end{align*}
   \]
   (d) \[
   \begin{align*}
   x' &= x + x^3 + y \\
   y' &= 2x + y
   \end{align*}
   \]