1. Consider the surface $-x^2 - y^2 + z^2 = 1$
   a. Sketch the traces in the yz-plane, the xy-plane, and the planes $z = \pm 1$, $z = \pm 5$.
   b. Use your traces to sketch a graph of the surface.
      This is a *hyperboloid of two sheets*.

2. Consider the surface $z = x^2 - y^2$.
   a. Sketch the traces in the yz-plane, the xz-plane, the xy-plane and the planes $z = \pm 1$, $z = \pm 2$.
   b. Use your traces to sketch a graph of the surface.
      This is a *hyperbolic paraboloid*.

3. Find the equation of a hyperboloid of two sheets whose trace in the yz-plane is a hyperbola with vertices at the points $(0, 0, 4)$ and $(0, 0, -4)$.