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, and verify your graph using Maple. 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, and verify your graph using Maple. This is a *hyperbolic paraboloid*.

3. Find the equation of a hyperboloid of two sheets extending along the y-axis with vertices at $(0, 4, 0)$ and $(0, -4, 0)$.