For $x = y^2 + 7z^2$, the traces in $x = k$ are $y^2 + 7z^2 = k$. When $k > 0$ we have a family of ellipses. When $k = 0$ we have just a point at the origin, and the trace is empty for $k < 0$. The traces in $y = k$ are $x = 7z^2 + k^2$, a family of parabolas opening in the positive x -direction. Similarly, the traces in $z = k$ are $x = y^2 + 7k^2$, a family of parabolas opening in the positive x -direction. We recognize the graph as an elliptic paraboloid with axis the x -axis and vertex the origin.