An interesting example of a curve in $\mathbb{R}^3$ is the twisted cubic, which is the variety $V(y - x^2, z - x^3)$. For simplicity, we will confine ourselves to the portion that lies in the first octant. To begin, we draw the surfaces $y = x^2$ and $z = x^3$ separately:

\[ y = x^2 \quad \text{and} \quad z = x^3 \]

Then their intersection gives the twisted cubic:
Let $x, y, z$ be polynomials in $\mathbb{R}[x, y, z]$ (so $x = x^1y^0z^0$, etc.)

1. Sketch $\mathbb{V}(x)$

2. Sketch $\mathbb{V}(y, x)$

3. Sketch $\mathbb{V}(x) \cup \mathbb{V}(y, x)$

4. Sketch $\mathbb{V}(xz, yz)$. 