

EXERCISE 3.8.7 (cont.)

Let \mathbf{A} be the matrix of the linear transformation T relative to the basis \mathcal{B} .

The diagram illustrates a 3D coordinate system with axes labeled x , y , and z . A rectangular prism is shown in the first octant, with its base on the xy -plane. The prism is divided into two parts by a vertical plane parallel to the yz -plane. The left part is a rectangular prism with height z . The right part is a triangular prism with a triangular base in the xy -plane and height z . The triangular base has vertices at the origin, $(1, 0, 0)$, and $(1, 1, 0)$. The top face of the prism is a rectangle with vertices at $(0, 0, z)$, $(1, 0, z)$, $(1, 1, z)$, and $(0, 1, z)$. The vertical plane is at $x=1$. The diagram is labeled with x , y , z axes and z for the height of the prism.