



实验15 产生锥面以及与平面的截口

通过如下的计算产生锥面的数据矩阵，平面的数据矩阵以及附在锥面上的一条曲线的数据矩阵，进而输出它们的图形：

$$i := 0..40 \quad j := 0..40$$

$$X_{i,j} := \left(\frac{j-20}{10} \right) \cdot \cos\left(\frac{2 \cdot \pi \cdot i}{40} \right) \quad Y_{i,j} := \left(\frac{j-20}{10} \right) \cdot \sin\left(\frac{2 \cdot \pi \cdot i}{40} \right) \quad Z_{i,j} := \frac{j-20}{10}$$

$$\theta := 15 \cdot \text{deg}$$

$$x_{i,j} := \frac{j-20}{8} \cdot \sin(\theta) + 1 \quad y_{i,j} := \frac{i-20}{8} \quad z_{i,j} := \frac{j-30}{8} \cdot \cos(\theta) + 1.0$$

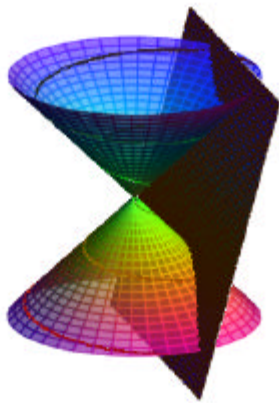
$$t := 0..160$$

$$p_{i,t} := \frac{t-80}{40} \cdot \sin\left(\frac{t}{6} \right) \quad q_{i,t} := \frac{t-80}{40} \cdot \cos\left(\frac{t}{6} \right) \quad r_{i,t} := \frac{t-80}{40}$$

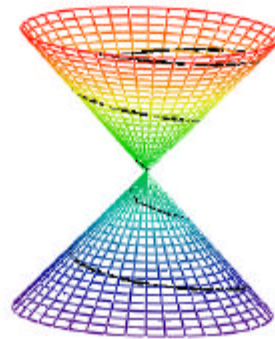
$$C := \begin{pmatrix} X \\ Y \\ Z \end{pmatrix}$$

$$c := \begin{pmatrix} x \\ y \\ z \end{pmatrix}$$

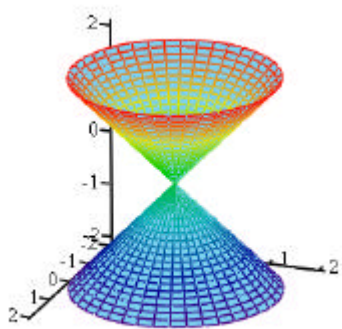
$$P := \begin{pmatrix} p \\ q \\ r \end{pmatrix}$$



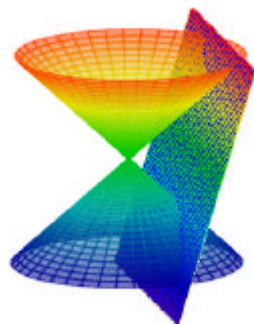
P,C,c



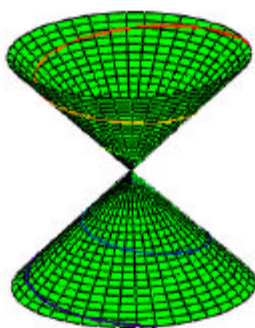
C,P



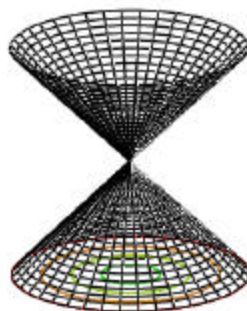
(X,Y,Z)



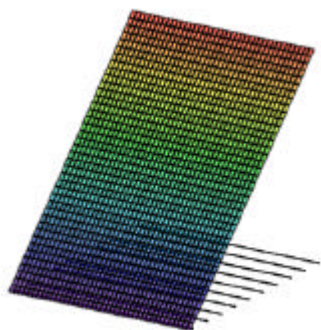
C,c



P,C



C,C



c,c



P,P