Solution to Practice 1t

A7(d)

First we compute $\begin{bmatrix} 1 \\ 5 \\ -3 \end{bmatrix} \times \begin{bmatrix} 1 \\ 0 \\ -1 \end{bmatrix} = \begin{bmatrix} (5)(-1) - (-3)(0) \\ (-3)(1) - (1)(-1) \\ (1)(0) - (5)(1) \end{bmatrix} = \begin{bmatrix} -5 \\ -2 \\ -5 \end{bmatrix}$.

Then we compute $\begin{bmatrix} 3 \\ 0 \\ 4 \end{bmatrix} \cdot \begin{bmatrix} -5 \\ -2 \\ -5 \end{bmatrix} = (3)(-5) + (0)(-2) + (4)(-5) = -35$. So
the volume of the parallelepiped is 35.

A7(e)

First we compute $\begin{bmatrix} -1 \\ 1 \\ 1 \end{bmatrix} \times \begin{bmatrix} -2 \\ 4 \\ 0 \end{bmatrix} = \begin{bmatrix} (1)(0) - (1)(4) \\ (1)(-2) - (-1)(0) \\ (-1)(4) - (1)(-2) \end{bmatrix} = \begin{bmatrix} -4 \\ -2 \\ -2 \end{bmatrix}$.

Then we compute $\begin{bmatrix} 2 \\ 2 \\ 2 \end{bmatrix} \cdot \begin{bmatrix} -4 \\ -2 \\ -2 \end{bmatrix} = (2)(-4) + (2)(-2) + (2)(-2) = -16$. So
the volume of the parallelepiped is 16.