Answer on Question # 41260 – Math – Linear Algebra

Compute the determinant using elements in the first row:

$$\begin{vmatrix} 1 & 5 & 4 \\ 0 & -7 & -8 \\ 3 & 7 & 1 \end{vmatrix}$$

Solution.

$$\begin{vmatrix} 1 & 5 & 4 \\ 0 & -7 & -8 \\ 3 & 7 & 1 \end{vmatrix} = 1 \cdot \begin{vmatrix} -7 & -8 \\ 7 & 1 \end{vmatrix} - 5 \cdot \begin{vmatrix} 0 & -8 \\ 3 & 1 \end{vmatrix} + 4 \cdot \begin{vmatrix} 0 & -7 \\ 3 & 7 \end{vmatrix} =$$

$$= 1 \cdot \big((-7) \cdot 1 - 7 \cdot (-8)\big) - 5 \cdot \big(0 \cdot 1 - 3 \cdot (-8)\big) + 4 \cdot \big(0 \cdot 7 - 3 \cdot (-7)\big) =$$

$$= 49 - 120 + 84 = 13.$$

Answer.

13.