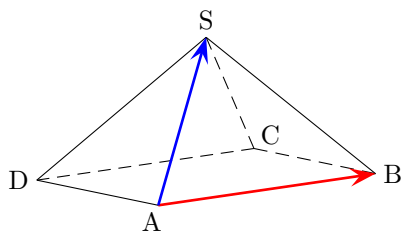


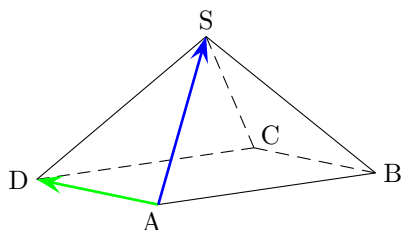
8.15

1)



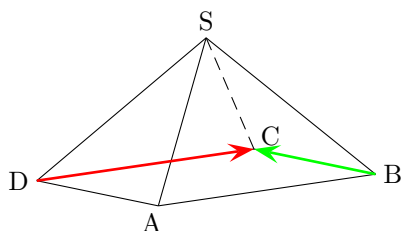
$$\begin{aligned}\overrightarrow{BS} &= -\overrightarrow{AB} + \overrightarrow{AS} \\ &= -\vec{e}_1 + \vec{e}_3\end{aligned}$$

2)



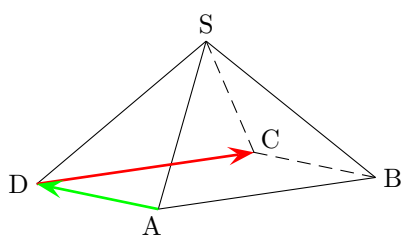
$$\begin{aligned}\overrightarrow{DS} &= -\overrightarrow{AD} + \overrightarrow{AS} \\ &= -\vec{e}_2 + \vec{e}_3\end{aligned}$$

3)



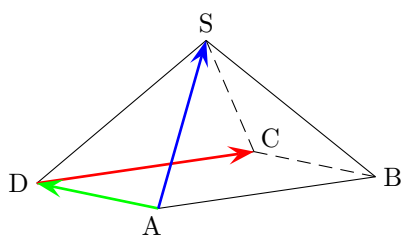
$$\begin{aligned}\overrightarrow{DB} &= \overrightarrow{DC} - \overrightarrow{BC} \\ &= \overrightarrow{AB} - \overrightarrow{AD} \\ &= \vec{e}_1 - \vec{e}_2\end{aligned}$$

4)



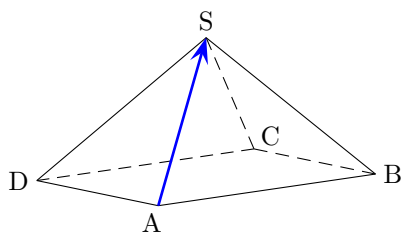
$$\begin{aligned}\overrightarrow{CA} &= -\overrightarrow{DC} - \overrightarrow{AD} \\ &= -\overrightarrow{AB} - \overrightarrow{AD} \\ &= -\vec{e}_1 - \vec{e}_2\end{aligned}$$

5)



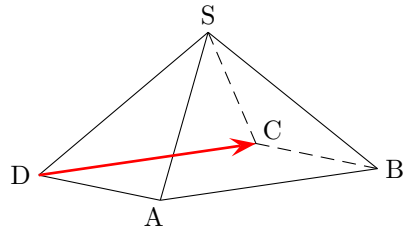
$$\begin{aligned}\overrightarrow{CS} &= -\overrightarrow{DC} - \overrightarrow{AD} + \overrightarrow{AS} \\ &= -\overrightarrow{AB} - \overrightarrow{AD} + \overrightarrow{AS} \\ &= -\vec{e}_1 - \vec{e}_2 + \vec{e}_3\end{aligned}$$

6)



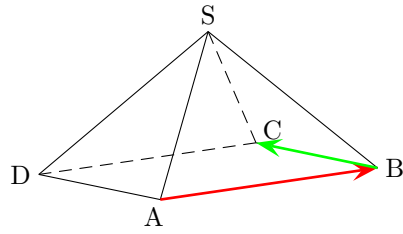
$$\overrightarrow{AS} = \vec{e}_3$$

7)



$$\begin{aligned}\overrightarrow{DC} &= \overrightarrow{AB} \\ &= \vec{e}_1\end{aligned}$$

8)



$$\begin{aligned}\overrightarrow{AC} &= \overrightarrow{AB} + \overrightarrow{BC} \\ &= \overrightarrow{AB} + \overrightarrow{AD} \\ &= \vec{e}_1 + \vec{e}_2\end{aligned}$$