

**6.6**

$$\begin{aligned}
 1) \quad \vec{a} &= \overrightarrow{BD} + \overrightarrow{AB} + \overrightarrow{DC} \\
 &= \overrightarrow{AB} + \overrightarrow{BD} + \overrightarrow{DC} \\
 &= \overrightarrow{AC}
 \end{aligned}$$

$$\begin{aligned}
 2) \quad \vec{b} &= \overrightarrow{BC} + \overrightarrow{DE} + \overrightarrow{DC} + \overrightarrow{AD} + \overrightarrow{EB} \\
 &= \overrightarrow{AD} + \overrightarrow{DE} + \overrightarrow{EB} + \overrightarrow{BC} + \overrightarrow{DC} \\
 &= \overrightarrow{AC} + \overrightarrow{DC}
 \end{aligned}$$

$$\begin{aligned}
 3) \quad \vec{c} &= \overrightarrow{AC} - \overrightarrow{BD} - \overrightarrow{AB} \\
 &= \overrightarrow{AC} + \overrightarrow{DB} + \overrightarrow{BA} \\
 &= \overrightarrow{DB} + \overrightarrow{BA} + \overrightarrow{AC} \\
 &= \overrightarrow{DC}
 \end{aligned}$$

$$\begin{aligned}
 4) \quad \vec{d} &= \overrightarrow{DA} - \overrightarrow{DB} + \overrightarrow{CD} - \overrightarrow{BC} \\
 &= \overrightarrow{DA} + \overrightarrow{BD} + \overrightarrow{CD} + \overrightarrow{CB} \\
 &= \overrightarrow{CD} + \overrightarrow{CB} + \overrightarrow{BD} + \overrightarrow{DA} \\
 &= \overrightarrow{CD} + \overrightarrow{CA}
 \end{aligned}$$

$$\begin{aligned}
 5) \quad \vec{e} &= \overrightarrow{EC} - \overrightarrow{ED} + \overrightarrow{CB} - \overrightarrow{DB} \\
 &= \overrightarrow{EC} + \overrightarrow{DE} + \overrightarrow{CB} + \overrightarrow{BD} \\
 &= \overrightarrow{BD} + \overrightarrow{DE} + \overrightarrow{EC} + \overrightarrow{CB} \\
 &= \overrightarrow{BB} \\
 &= \vec{0}
 \end{aligned}$$

$$\begin{aligned}
 6) \quad \vec{f} &= \overrightarrow{AC} + \overrightarrow{CE} - \overrightarrow{AD} \\
 &= \overrightarrow{AC} + \overrightarrow{CE} + \overrightarrow{DA} \\
 &= \overrightarrow{DA} + \overrightarrow{AC} + \overrightarrow{CE} \\
 &= \overrightarrow{DE}
 \end{aligned}$$