

$$\begin{aligned}
 5) a) \quad & \overrightarrow{AC} - \overrightarrow{BC} - \overrightarrow{PM} - \overrightarrow{AP} + \overrightarrow{BM} = \\
 & = \overrightarrow{AC} + \overrightarrow{CB} - \overrightarrow{PM} - \overrightarrow{AP} + \overrightarrow{BM} = \\
 & = \overrightarrow{AB} + \overrightarrow{BM} - \overrightarrow{AP} - \overrightarrow{PM} = \overrightarrow{AM} + \overrightarrow{MP} - \overrightarrow{AP} = \\
 & = \overrightarrow{AP} - \overrightarrow{AP} = \vec{0}
 \end{aligned}$$

$$\begin{aligned}
 b) \quad & 2(\overrightarrow{m} + \overrightarrow{n}) - 3(4\overrightarrow{m} - \overrightarrow{n}) + \overrightarrow{m} = \\
 & = 2\overrightarrow{m} + 2\overrightarrow{n} - 12\overrightarrow{m} + 3\overrightarrow{n} + \overrightarrow{m} = \\
 & = -9\overrightarrow{m} + 5\overrightarrow{n}
 \end{aligned}$$