

Problem I : Given the four points A,B,C,D build the following sums of vectors :

$$\vec{V}_1 = \vec{AB} + \vec{BC}$$

$$\vec{V}_2 = \vec{AB} + \vec{AC}$$

$$\vec{V}_3 = \vec{AB} + \vec{CD}$$



Problem II : Given the four points A,B,C,D build the following differences of vectors :

$$\vec{V}_4 = \vec{AB} - \vec{BC}$$

$$\vec{V}_5 = \vec{AB} - \vec{AC}$$

$$\vec{V}_6 = \vec{AB} - \vec{CD}$$



Problem III : Given the four points A,B,C,D, build the points M_1, M_2, M_3 defined by the following relations of the vectors :

$$\overrightarrow{AM_1} = \overrightarrow{AB} + \overrightarrow{AC} + \overrightarrow{AD}$$

$$\overrightarrow{AM_2} = \overrightarrow{AB} + \overrightarrow{AC} - \overrightarrow{AD}$$

$$\overrightarrow{AM_3} = \overrightarrow{AB} - \frac{1}{2}\overrightarrow{AC} + 2\overrightarrow{AD}$$



Problem IV : Given the three points A,B,C build, if possible, the points M, N, P, defined by the following relation of the vectors :

$$\overrightarrow{MA} + \overrightarrow{MB} + \overrightarrow{MC} = \vec{0}$$

$$\overrightarrow{NA} - 2\overrightarrow{NB} + 3\overrightarrow{NC} = \vec{0}$$

$$\overrightarrow{PA} + \overrightarrow{PB} - 2\overrightarrow{PC} = \vec{0}$$

