ΛΥΣΗ:

α) $\vec{u} = 3\vec{\alpha} - 5\vec{\beta} = 3(1,-3) - 5(-2,-1) = (3,-9) - (-10,-5) = (13,-4)$

και

$\vec{v} = 5\vec{\alpha} - 9\vec{\beta} = 5(1,-3) - 9(-2,-1) = (5,-15) - (-18,-9) = (23,-6)$.

β) $\vec{w} = 2\vec{u} - \vec{v} = 2\left(3\,\vec{\alpha} - 5\vec{\beta}\right) - \left(5\vec{\alpha} - 9\vec{\beta}\right) = 6\vec{\alpha} - 10\vec{\beta} - 5\vec{\alpha} + 9\vec{\beta} = \vec{\alpha} - \vec{\beta}$.

γ) $\overrightarrow{K\Lambda} = \vec{w} - \vec{\beta} = \vec{\alpha} - \vec{\beta} - \vec{\beta} = \vec{\alpha} - 2\vec{\beta}$ και

$\overrightarrow{\Lambda M} = \vec{u} - \vec{w} = 3\vec{\alpha} - 5\vec{\beta} - \vec{\alpha} + \vec{\beta} = 2\vec{\alpha} - 4\vec{\beta} = 2\left(\vec{\alpha} - 2\vec{\beta}\right) = 2 \cdot \overrightarrow{K\Lambda}$

Άρα τα διανύσματα $\overrightarrow{K\Lambda}$ και $\overrightarrow{\Lambda M}$ είναι παράλληλα, οπότε τα σημεία Κ, Λ, Μ είναι συνευθειακά.