

Β ΛΥΚΕΙΟΥ ΘΕΤΙΚΟΣ ΠΡΟΣΑΝΑΤΟΛΙΣΜΟΣ

4.22 1)

Είναι $\overrightarrow{OD} = (4-0, 2-0) = (4, 2)$, $\overrightarrow{AB} = (1-2, 3-0) = (-1, 3)$ και $\overrightarrow{AG} = (-1-2, 2-0) = (-3, 2)$

Οπότε αν $\overrightarrow{OD} = \kappa \overrightarrow{AB} + \lambda \overrightarrow{AG}$ έχουμε

$$\overrightarrow{OD} = \kappa \overrightarrow{AB} + \lambda \overrightarrow{AG} \Leftrightarrow (4, 2) = \kappa(-1, 3) + \lambda(-3, 2) \Leftrightarrow (4, 2) = (-\kappa, 3\kappa) + (-3\lambda, 2\lambda) \Leftrightarrow$$

$$\Leftrightarrow (4, 2) = (-\kappa, 3\kappa) + (-3\lambda, 2\lambda) \Leftrightarrow (4, 2) = (-\kappa - 3\lambda, 3\kappa + 2\lambda) \Leftrightarrow \begin{cases} -\kappa - 3\lambda = 4 \\ 3\kappa + 2\lambda = 2 \end{cases} \Leftrightarrow \dots \Leftrightarrow \begin{cases} \kappa = 2 \\ \lambda = -2 \end{cases}$$

Επομένως είναι $\overrightarrow{OD} = 2\overrightarrow{AB} - 2\overrightarrow{AG}$

4.22 2)

Είναι $\overrightarrow{OD} = (20-0, 14-0) = (20, 14)$, $\overrightarrow{AB} = (5-3, 6-(-2)) = (2, 8)$ και

$$\overrightarrow{AG} = (-1-3, 4-(-2)) = (-4, 6)$$

Οπότε αν $\overrightarrow{OD} = \kappa \overrightarrow{AB} + \lambda \overrightarrow{AG}$ έχουμε

$$\overrightarrow{OD} = \kappa \overrightarrow{AB} + \lambda \overrightarrow{AG} \Leftrightarrow (20, 14) = \kappa(2, 8) + \lambda(-4, 6) \Leftrightarrow (20, 14) = (2\kappa + 8\lambda, 8\kappa + 6\lambda) \Leftrightarrow$$

$$\Leftrightarrow (20, 14) = (2\kappa - 4\lambda, 8\kappa + 6\lambda) \Leftrightarrow \begin{cases} 2\kappa - 4\lambda = 20 \\ 8\kappa + 6\lambda = 14 \end{cases} \Leftrightarrow \dots \Leftrightarrow \begin{cases} \kappa = 4 \\ \lambda = -3 \end{cases}$$

Επομένως είναι $\overrightarrow{OD} = 4\overrightarrow{AB} - 3\overrightarrow{AG}$

4.22 3)

Είναι $\overrightarrow{BG} = (2-4, 1-(-1)) = (-2, 2)$, $\overrightarrow{OG} = (2, 1)$ και $\overrightarrow{AD} = (-6, -4)$

Οπότε αν $\overrightarrow{BG} = \kappa \overrightarrow{OG} + \lambda \overrightarrow{AD}$ έχουμε

$$(-2, 2) = \kappa(2, 1) + \lambda(-6, -4) \Leftrightarrow (-2, 2) = (2\kappa, \kappa) + (-6\lambda, -4\lambda) \Leftrightarrow$$

$$\Leftrightarrow (-2, 2) = (2\kappa - 6\lambda, \kappa - 4\lambda) \Leftrightarrow \begin{cases} 2\kappa - 6\lambda = -2 \\ \kappa - 4\lambda = 2 \end{cases} \Leftrightarrow \dots \Leftrightarrow \begin{cases} \kappa = -10 \\ \lambda = -3 \end{cases}$$

Επομένως είναι $\overrightarrow{AD} = -10\overrightarrow{OG} - 3\overrightarrow{AD}$