

Β ΛΥΚΕΙΟΥ ΘΕΤΙΚΟΣ ΠΡΟΣΑΝΑΤΟΛΙΣΜΟΣ

12.2 1)

Είναι $\overrightarrow{AB} = \begin{pmatrix} x_2 - x_1 \\ y_2 - y_1 \end{pmatrix} = (-1 - 3, 4 - 2) = (-4, 2)$ και $\overrightarrow{\Gamma A} = \begin{pmatrix} x_2 - x_1 \\ y_2 - y_1 \end{pmatrix} = (3 + \mu, 2 - 0) = (\mu + 3, 2)$, οπότε

$$(AB\Gamma) = 40 \Rightarrow \frac{1}{2} \left| \det(\overrightarrow{AB}, \overrightarrow{\Gamma A}) \right| = 40 \Rightarrow \frac{1}{2} \left| \begin{vmatrix} -4 & 2 \\ \mu + 3 & 2 \end{vmatrix} \right| = 40 \Rightarrow |-8 - 2(\mu + 3)| = 80 \Rightarrow$$

$$\Rightarrow |-8 - 2\mu - 6| = 80 \Rightarrow |-2\mu - 14| = 80 \Rightarrow |2\mu + 14| = 80 \Rightarrow \begin{cases} 2\mu + 14 = 80 \Rightarrow 2\mu = 66 \Rightarrow \mu = 33 \\ \text{ή} \\ 2\mu + 14 = -80 \Rightarrow 2\mu = -94 \Rightarrow \mu = -47 \end{cases}$$

12.2 2)

Είναι $\overrightarrow{AB} = (4 - 2, 6 - 2) = (2, 4)$ και

$\overrightarrow{A\Gamma} = (\lambda - 1 - 2, \lambda + 3 - 2) = (\lambda - 3, \lambda + 1)$ οπότε

$$(AB\Gamma) = 5 \Rightarrow \frac{1}{2} \left| \det(\overrightarrow{AB}, \overrightarrow{A\Gamma}) \right| = 5 \Rightarrow \frac{1}{2} \left| \begin{vmatrix} 2 & 4 \\ \lambda - 3 & \lambda + 1 \end{vmatrix} \right| = 5 \Rightarrow$$

$$\Rightarrow |2(\lambda + 1) - 4(\lambda - 3)| = 10 \Rightarrow |2\lambda + 2 - 4\lambda + 12| = 10 \Rightarrow$$

$$\Rightarrow |14 - 2\lambda| = 10 \Rightarrow \begin{cases} 14 - 2\lambda = 10 \\ \text{ή} \\ 14 - 2\lambda = -10 \end{cases} \Rightarrow \begin{cases} \lambda = 2 \\ \text{ή} \\ \lambda = 12 \end{cases}$$

12.2 3)

Είναι $\overrightarrow{AB} = (\lambda + 3 - 1, 7 - 3) = (\lambda + 2, 4)$ και

$\overrightarrow{A\Gamma} = (\lambda - 1, 6 - 3) = (\lambda - 1, 3)$ οπότε

$$(AB\Gamma) = 12 \Rightarrow \frac{1}{2} \left| \det(\overrightarrow{AB}, \overrightarrow{A\Gamma}) \right| = 12 \Rightarrow \frac{1}{2} \left| \begin{vmatrix} \lambda + 2 & 4 \\ \lambda - 1 & 3 \end{vmatrix} \right| = 12 \Rightarrow$$

$$\Rightarrow |3(\lambda + 2) - 4(\lambda - 1)| = 24 \Rightarrow |3\lambda + 6 - 4\lambda + 4| = 24 \Rightarrow$$

$$\Rightarrow |10 - \lambda| = 24 \Rightarrow \begin{cases} 10 - \lambda = 24 \\ \text{ή} \\ 10 - \lambda = -24 \end{cases} \Rightarrow \begin{cases} \lambda = 14 \\ \text{ή} \\ \lambda = 34 \end{cases}$$

12.2 4)

Είναι $\overrightarrow{AB} = (-\lambda - (\lambda + 2), 4 - 2\lambda) = (-2\lambda - 2, 4 - 2\lambda)$ και

$\overrightarrow{A\Gamma} = (-5 - (\lambda + 2), \lambda - 1 - 2\lambda) = (-7 - \lambda, -\lambda - 1)$ οπότε

$$\frac{1}{2} \left| \det(\overrightarrow{AB}, \overrightarrow{A\Gamma}) \right| = 12 \Rightarrow \frac{1}{2} \left| \begin{vmatrix} -2 - 2\lambda & 4 - 2\lambda \\ -7 - \lambda & -\lambda - 1 \end{vmatrix} \right| = 12 \Rightarrow$$

$$\Rightarrow |(2 + 2\lambda)(\lambda + 1) - (4 - 2\lambda)(-7 - \lambda)| = 24 \Rightarrow$$

$$\Rightarrow |2\lambda + 2 + 2\lambda^2 + 2\lambda - (-28 - 4\lambda + 14\lambda + 2\lambda^2)| = 24 \Rightarrow$$

$$\Rightarrow |2\lambda + 2 + \cancel{2\lambda^2} + 2\lambda + 28 + 4\lambda - 14\lambda - \cancel{2\lambda^2}| = 24 \Rightarrow$$

$$\Rightarrow |-6\lambda + 30| = 24 \Rightarrow \begin{cases} -6\lambda + 30 = 24 \\ \text{đ} \\ -6\lambda + 30 = -24 \end{cases} \Rightarrow \begin{cases} 6\lambda = 6 \\ \text{đ} \\ 6\lambda = 54 \end{cases} \Rightarrow \begin{cases} \lambda = 1 \\ \text{đ} \\ \lambda = 9 \end{cases}$$