

1890

$$\alpha) \Delta = (2\lambda + 3)^2 - 4 \cdot (\lambda + 2) \cdot (\lambda - 2) = 4\lambda^2 + 12\lambda + 9 - 4(\lambda^2 - 4) =$$

$$= 4\lambda^2 + 12\lambda + 9 - 4\lambda^2 + 16 = 12\lambda + 25$$

$$\beta) \text{ Πρέπει: } \Delta > 0 \Leftrightarrow 12\lambda + 25 > 0 \Leftrightarrow 12\lambda > -25 \Leftrightarrow$$

$$\Leftrightarrow \lambda > -\frac{25}{12} \quad \text{και} \quad \text{αφού} \quad \lambda \neq -2$$

$$\text{άρα: } \lambda \in \left(-\frac{25}{12}, -2\right) \cup (-2, +\infty)$$

$$\gamma) S = x_1 + x_2 = -\frac{\beta}{\alpha} = -\frac{(2\lambda + 3)}{\lambda + 2}$$

$$P = x_1 \cdot x_2 = \frac{\gamma}{\alpha} = \frac{\lambda - 2}{\lambda + 2}$$

$$\delta) (x_1 + x_2 - 1)^2 + (x_1 - x_2 + 3)^2 = 0 \Leftrightarrow$$

$$\Leftrightarrow (S - 1)^2 + (P + 3)^2 = 0 \Leftrightarrow S - 1 = 0 \quad \text{και} \quad P + 3 = 0 \Leftrightarrow$$

$$\Leftrightarrow S = 1 \quad \text{και} \quad P = -3 \Leftrightarrow \frac{-2\lambda - 3}{\lambda + 2} = 1 \quad \text{και} \quad \frac{\lambda - 2}{\lambda + 2} = -3 \Leftrightarrow$$

$$\Leftrightarrow -2\lambda - 3 = \lambda + 2 \quad \text{και} \quad \lambda - 2 = -3\lambda - 6 \Leftrightarrow$$

$$\Leftrightarrow -3\lambda = 5 \quad \text{και} \quad 4\lambda = -4 \Leftrightarrow$$

$$\Leftrightarrow \lambda = -\frac{5}{3} \quad \text{και} \quad \lambda = -1$$

άρα δεν υπάρχουν τέτοιες τιμές του λ .