

$$\text{Είναι : } (\vec{\alpha} - \vec{\beta}) = (x - 2, -2 - (-1)) = (x - 2, -1)$$

$$\text{Και } (\vec{\alpha} + \vec{\beta}) = (x + 2, -2 - 1) = (x + 2, -3)$$

Για να ισχύει : $(\vec{\alpha} - \vec{\beta}) \perp (\vec{\alpha} + \vec{\beta})$, θα πρέπει :

$$(\vec{\alpha} - \vec{\beta}) \cdot (\vec{\alpha} + \vec{\beta}) = 0 \Leftrightarrow$$

$$\Leftrightarrow (x - 2, -1) \cdot (x + 2, -3) = 0 \Leftrightarrow$$

$$\Leftrightarrow (x - 2)(x + 2) + 3 = 0 \Leftrightarrow$$

$$\Leftrightarrow x^2 - 2^2 + 3 = 0 \Leftrightarrow x^2 - 1 = 0 \Leftrightarrow$$

$$\Leftrightarrow (x - 1)(x + 1) = 0 \Leftrightarrow x = 1 \quad \text{ή} \quad x = -1$$