

Β ΛΥΚΕΙΟΥ ΘΕΤΙΚΟΣ ΠΡΟΣΑΝΑΤΟΛΙΣΜΟΣ

5.21 1)

$$\text{συν}(\vec{\alpha}, \vec{\beta}) = \frac{\vec{\alpha} \cdot \vec{\beta}}{|\vec{\alpha}| \cdot |\vec{\beta}|} = \frac{x_1 x_2 + y_1 y_2}{\sqrt{x_1^2 + y_1^2} \cdot \sqrt{x_2^2 + y_2^2}} = \frac{2 \cdot 1 + 1 \cdot (-1)}{\sqrt{2^2 + 1^2} \cdot \sqrt{1^2 + (-1)^2}} = \frac{1}{\sqrt{5} \cdot \sqrt{2}} = \frac{1}{\sqrt{10}} \stackrel{\text{ρητοποίηση}}{=} \frac{\sqrt{10}}{10}$$

5.21 2)

$$\text{συν}(\vec{\alpha}, \vec{\beta}) = \frac{\vec{\alpha} \cdot \vec{\beta}}{|\vec{\alpha}| \cdot |\vec{\beta}|} = \frac{1 \cdot 3 - 1 \cdot 1}{\sqrt{1^2 + (-1)^2} \cdot \sqrt{3^2 + 1^2}} = \frac{2}{\sqrt{2} \cdot \sqrt{10}} = \frac{1}{\sqrt{5}} = \frac{\sqrt{5}}{5}$$

5.21 3)

$$\text{συν}(\vec{\alpha}, \vec{\beta}) = \frac{\vec{\alpha} \cdot \vec{\beta}}{|\vec{\alpha}| \cdot |\vec{\beta}|} = \frac{4 \cdot (-3) + 2 \cdot 4}{\sqrt{4^2 + 2^2} \cdot \sqrt{(-3)^2 + 4^2}} = \frac{-4}{\sqrt{20} \cdot 5} = \frac{-4}{2\sqrt{5} \cdot 5} = \frac{-2\sqrt{5}}{25}$$

5.21 4)

$$\text{συν}(\vec{\alpha}, \vec{\beta}) = \frac{\vec{\alpha} \cdot \vec{\beta}}{|\vec{\alpha}| \cdot |\vec{\beta}|} = \frac{1 \cdot 5 + 7 \cdot (-5)}{\sqrt{1^2 + 7^2} \cdot \sqrt{5^2 + 5^2}} = \frac{-30}{\sqrt{50} \cdot \sqrt{50}} = -\frac{30}{50} = -\frac{3}{5}$$

5.21 5)

$$\text{συν}(\vec{\alpha}, \vec{\beta}) = \frac{\vec{\alpha} \cdot \vec{\beta}}{|\vec{\alpha}| \cdot |\vec{\beta}|} = \frac{3 \cdot 8 + 4 \cdot 6}{\sqrt{3^2 + 4^2} \cdot \sqrt{8^2 + 6^2}} = \frac{48}{5 \cdot 10} = \frac{24}{25}$$