

1

- $x + y + z = 0$ $\mu \neq 0$ $\neq 0$, μ
 $\mu \mu$. (8)
- : $(\mu^2 - 1)x + (\mu + 1)y + (\mu^2 - 3\mu + 2)z = 0$, $\mu \in \mathbb{R}$.
- i) μ μ . (5)
- ii) μ μ // $y'z$; (4)
- iii) μ μ // $x'z$; (4)
- iv) μ μ ; (4)

2

- i) μ μ μ $\vec{\alpha}$, $\vec{\beta}$
 $\vec{\alpha} = \frac{\vec{\alpha} \cdot \vec{\beta}}{|\vec{\beta}|^2} \cdot \vec{\beta}$ (7)
- ii) $\vec{a} = 4\vec{i} - 3\vec{j}$ $\vec{b} = 2\vec{i} + 5\vec{j}$, $\vec{c} = \vec{a} + \vec{b}$
(5)
- $|\vec{a}| = 1$, $|\vec{b}| = 3$, $|\vec{c}| = 2$ $\vec{a} + \vec{b} - 2\vec{c} = \vec{0}$:
- i) $\vec{a} \cdot \vec{b} - \vec{b} \cdot \vec{c} + \vec{c} \cdot \vec{a} = -1$ (8)
- ii) $\vec{b} = 3\vec{a}$ $\vec{c} = 2\vec{a}$ (5)

3

• $|\vec{\alpha}| = |\vec{\beta}| = 1 \quad \left(\vec{\alpha}, \vec{\beta} \right) = \frac{\pi}{3}$ μ
 $\vec{u} = \vec{\alpha} + \vec{\beta} \quad \vec{v} = \vec{\alpha} - 2\vec{\beta}$ (8)

• $\vec{u} = (5, 10)$ μ
 $\vec{v} = (-1, 3)$ (8)

• $|\vec{\alpha}| = \frac{1}{5}, |\vec{\beta}| = \frac{\sqrt{3}}{3}, |\vec{\gamma}| = 10, \left(\vec{\alpha}, \vec{\beta} \right) = \frac{\pi}{3} \quad \left(\vec{\alpha}, \vec{\gamma} \right) = \frac{\pi}{6}$
 $\vec{\alpha}, \vec{\beta}, \vec{\gamma}$ (9)

4

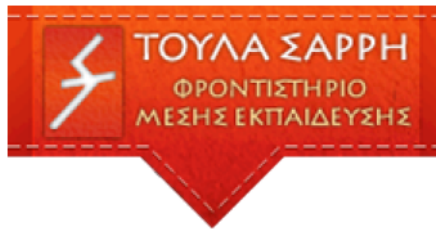
• $M(x, y)$
 $x^2 + y^2 - 2xy + 3y - 3x + 2 = 0$

i) \vec{h} (9)

ii) x', x, h (3)

iii) h (6)

• $x + (-1)y = 2 \quad (+1)x + y = 2 + 1 \quad \lambda \in \mathbb{R}$



(7)

— μ — : μ /
μ