

46/11/64 1

$$A = \frac{x^2 - 5x - 2(x-5)}{x^2 - 25} = \frac{x(x-5) - 2(x-5)}{(x-5)(x+5)} = \frac{\cancel{(x-5)}(x-2)}{\cancel{(x-5)}(x+5)}$$

$$\begin{aligned} x-5 \neq 0 & \wedge x+5 \neq 0 \\ x \neq 5 & \wedge x \neq -5 \end{aligned}$$

$$A = \frac{x-2}{x+5}$$

$$B = \frac{x^2 + 4x + 4 + 3(x+2)}{x^2 - 4} = \frac{(x+2)^2 + 3(x+2)}{(x-2)(x+2)} = \frac{\cancel{(x+2)}(x+2+3)}{\cancel{(x+2)}(x-2)}$$

$$= \frac{\cancel{(x+2)}(x+5)}{\cancel{(x+2)}(x-2)} = \frac{x+5}{x-2} \quad \text{for } x \neq 2 \wedge x \neq -2$$

$$K = (A+B)^2 - (A-B)^2 = A^2 + 2AB + B^2 - (A^2 - 2AB + B^2)$$

$$= \cancel{A^2} + 2AB + \cancel{B^2} - \cancel{A^2} + 2AB - \cancel{B^2} =$$

$$= 4AB = 4 \cdot \frac{x-2}{x+5} \cdot \frac{x+5}{x-2} = 4 \text{ OK.}$$

## Задача 2

$$A) \begin{cases} x^2 + 4x + 4 + x^2 - 1 = x^2 + y + x^2 & | & 4x - y = -3 \\ \frac{x-2}{2} - \frac{y-2}{3} = \frac{1}{3} & | & 3x - 6 - 2y + 4 = 2 \end{cases} \quad (\Rightarrow)$$

$$\begin{cases} 4x - y = -3 \\ 3x - 2y = 4 \end{cases} \quad \times (-2) \quad \Rightarrow \quad \begin{cases} -8x + 2y = 6 \\ 3x - 2y = 4 \end{cases} \quad (+) \quad \Rightarrow \quad \begin{cases} -5x = 10 \\ \boxed{x = -2} \\ 4(-2) - y = -3 \end{cases} \quad (\Rightarrow)$$

$$\begin{cases} x = -2 \\ y = -8 + 3 \\ y = -5 \end{cases} \quad (x, y) = (-2, -5)$$

$$B) \begin{cases} -2\lambda - (\lambda - \mu)(-5) = 5 \\ (\lambda - 4)(-2) - \mu(-5) = 8 \end{cases} \quad \Rightarrow \quad \begin{cases} -2\lambda + 5\lambda - 5\mu = 5 \\ -2\lambda + 8 + 5\mu = 8 \end{cases} \quad \Rightarrow \quad \begin{cases} 3\lambda - 5\mu = 5 \\ -2\lambda + 5\mu = 0 \end{cases} \quad (+)$$

$$\boxed{\lambda = 5} \quad -2 \cdot 5 + 5\mu = 0 \quad \Rightarrow \quad \boxed{\mu = 2}$$

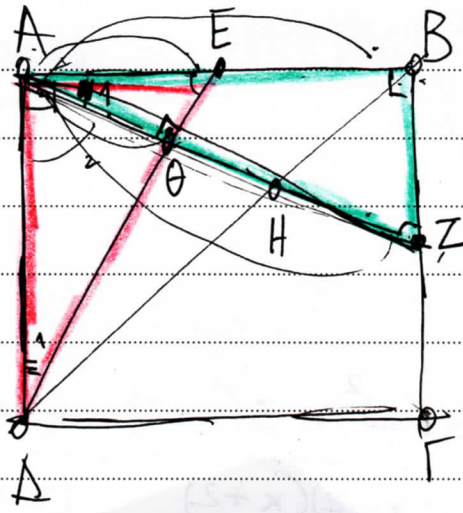
$$(\lambda, \mu) = (5, 2)$$

$$r) \begin{cases} \frac{4}{w-6} + w + 2\varphi = 2 \\ \frac{12}{w-6} + 2w + 4\varphi = 5 \end{cases} \quad \times (-2) \quad \Rightarrow \quad \begin{cases} \frac{-8}{w-6} - 2w - 4\varphi = -4 \\ \frac{12}{w-6} + 2w + 4\varphi = 5 \end{cases} \quad (+)$$

$$\frac{4}{w-6} = \frac{1}{1} \quad \Rightarrow \quad w-6 = 4 \quad \Rightarrow \quad \boxed{w = 6+4}$$

$$\frac{4}{6+4-6} + 6+4 + 2\varphi = 2 \quad \Rightarrow \quad 1 + 3\varphi + 4 = 2$$
$$3\varphi = -3 \quad \Rightarrow \quad \boxed{\varphi = -1} \quad \Rightarrow \quad \boxed{w = -1+4} = \boxed{w = 3}$$

Άσκηση 3



- α)  $\triangle ABZ, \triangle AEA$   
 i)  $\hat{B} = \hat{A} = 1^\circ$  |  $\eta-\Gamma-\Pi \mu$   
 ii)  $AB = AD = 2\text{cm}$  | Κρ. Ορθ. γ.  
 iii)  $BZ = AE = 1\text{cm}$  | Τετράγωνο

$\Rightarrow \hat{A}_1 = \hat{\Delta}_1$  (1)  
 $\hat{Z} = \hat{E}$  (2)

β)  $\triangle AEO$ :  $\hat{E} = \hat{Z}$  από (2) και  $\hat{A}_1 + \hat{Z} = 90^\circ$  ( $\hat{B} = 90^\circ$  στο  $\triangle ABZ$ )  
 άρα  $\hat{A}_1 + \hat{E} = 90^\circ \Rightarrow \hat{\theta} = 90^\circ$  (3)  
 άρα  $\triangle AEO$  ορθογώνιο.

γ)  $\triangle AEO$  όμοιο  $\triangle ABZ$   
 i)  $\hat{A}_1$  κοινή  
 ii)  $\hat{E} = \hat{Z}$  από (2)  
 $\Rightarrow \triangle AEO \sim \triangle ABZ \Rightarrow \frac{AO \cdot AZ = 2}{AO \cdot 2}$   
 $\frac{AE}{AZ} = \frac{AO}{AB} = \frac{EO}{ZB} =$

~~δ)  $\triangle AHO \sim \triangle ZHB$   
 i)  $\hat{H}_1 = \hat{H}_2$  κκ  $\Rightarrow \frac{AH}{ZH} = \frac{HO}{HB} = \frac{AO}{ZB} = \frac{2}{1} \Rightarrow AH = 2ZH$   
 ii)  $\hat{A}_2 = \hat{Z}$  εε  $\Rightarrow \frac{HO}{HB} = \frac{AO}{ZB} = \frac{2}{1} \Rightarrow HO = 2HB$   
 $\frac{HO}{HB} = \frac{2}{1} \Rightarrow \frac{HO}{HO+HB} = \frac{2}{1+2} \Rightarrow \frac{HO}{\Delta B} = \frac{2}{3}$~~

~~$HO = \frac{2}{3} \Delta B = \frac{2}{3} \cdot 2\sqrt{2} = \frac{4\sqrt{2}}{3}$~~

~~και  $\Delta B^2 = 2^2 + 2^2 = 8 \Rightarrow \Delta B = \sqrt{8} = 2\sqrt{2}$~~