

$\Sigma 139 / A3 \xrightarrow{v\beta} \boxed{K \in \mathbb{R}} : \omega \quad x-1 \text{ να είναι παράγοντας}$
 του $\boxed{g(x) = k^2 \cdot x^4 + 3k x^2 - 4}$

Αν $x-p$ παράγοντας του $Q \Leftrightarrow Q(p) = 0$

Αφω $x-1$ είναι παράγοντας της $g \Leftrightarrow \boxed{g(1) = 0} \Leftrightarrow$

$$k^2 \cdot 1^4 + 3 \cdot k \cdot 1^2 - 4 = 0 \Leftrightarrow \underline{k^2 + 3k - 4 = 0}$$

$$\Delta = 3^2 - 4 \cdot 1 \cdot (-4) = 9 + 16 = 25 > 0$$

$$k_{1,2} = \frac{-3 \pm \sqrt{25}}{2 \cdot 1} = \frac{-3 \pm 5}{2} \begin{cases} \rightarrow k_1 = \frac{-3+5}{2} = \frac{2}{2} = 1 \\ \rightarrow k_2 = \frac{-3-5}{2} = \frac{-8}{2} = -4 \end{cases}$$

I) $x+1$ παράγοντας της $g \xrightarrow{-1 \text{ πρ.}}$ $g(-1) = 0 \Leftrightarrow k^2 \cdot (-1)^4 + 3k \cdot (-1)^2 - 4 = 0$

$$\underline{k^2 + 3k - 4 = 0}$$

$$\begin{cases} \rightarrow k = 1 \\ \rightarrow k = -4 \end{cases}$$

II) $\boxed{1 \delta \text{ και } \pi \text{ πρ.}}$

$(x+2)$ παράγοντας της $g \Leftrightarrow g(-2) = 0 \Leftrightarrow$

$$x = \frac{-3 \pm 5}{2} = \frac{-8}{2} = -4$$

$$x_2 = \frac{-3+5}{2} = \frac{2}{2} = 1$$

$$\begin{aligned} &\rightarrow k^2 \cdot (-2)^4 + 3k \cdot (-2)^2 - 4 = 0 \\ &16k^2 + 12k - 4 = 0 \Leftrightarrow 4k^2 + 3k - 1 = 0 \end{aligned}$$

$$\Delta = 3^2 - 4 \cdot 4 \cdot (-1) = 9 + 16 = 25 > 0$$

$$\boxed{K = -1, K = \frac{1}{4}}$$

$\Sigma 139 A 4 \text{ III} / (x^5 + 1) : (x - 1) \quad p_1 \text{ r. x. u. a Horner}$

	1	0	0	0	0	1	<u>1</u>
+	X	1	1	1	1	1	
↓	1	1	1	1	1	2	

$$V = 2$$

$$\pi(x) = x^4 + x^3 + x^2 + x + 1$$

iv) $-3x^4 : (x - 2) \quad \text{r. x. Horner}$

	-3	0	0	0	0	2
+	X	-6	-12	-24	-48	
↓	-3	-6	-12	-24	-48	

$$V = -48$$

$$\pi(x) = -3x^3 - 6x^2 - 12x - 24$$

v) $(4x^3 + 16x^2 - 23x - 15) : (x + \frac{1}{2}) \quad p = -\frac{1}{2}$

	4	16	-23	-15	<u>$-\frac{1}{2}$</u>
+	X	-2	-7	15	
↓	4	14	-30	0	

$$V = 0$$

$$\pi(x) = 4x^2 + 14x - 30$$

$$\frac{2139}{1370008} / A5 \quad P(x) = -\frac{1}{2}x^3 - 2x^2 - x + 2409 \xrightarrow{vB} P(-11)$$

$$P(x) \mid x+11$$

$$\Rightarrow v = P(-11)$$

σχημα Horner

-2	-2	-1	2409	-11
X	+22	-220	2431	
-2	20	-221	4840	

$$v = P(-11) = 4.840$$

2370008

$$P(-11) = -2 \cdot (-11)^3 - 2 \cdot (-11)^2 - (-11) + 2409$$

$$= -2 \cdot (-1331) - 2 \cdot 121 + 11 + 2409$$

$$= + 2662 - 242 + 2420$$

$$= 2420 + 2420 = \underline{4.840 = P(-11)}$$

Εργασία
στην

2139

A5, A8
A10