

$$\begin{aligned}
& (-x^4)^2 \cdot (-x^4)^3 \cdot (-x^4)^4 \\
&= (-1x^4)^2 \cdot (-1x^4)^3 \cdot (-1x^4)^4 \\
&= (-1)^2 x^{4 \cdot 2} \cdot (-1)^3 x^{4 \cdot 3} \cdot (-1)^4 x^{4 \cdot 4} \\
&= (1x^8) \cdot (-1x^{12}) \cdot (1x^{16}) \\
&= 1 \cdot (-1) \cdot 1 x^{8+12+16} \\
&= -1 x^{36} = -x^{36}
\end{aligned}$$

$(-1)^3 = (-1) \cdot (-1) \cdot (-1)$
 $= (+1 \cdot 1) \cdot (-1)$
 $= 1 \cdot (-1)$
 $= -1$

$$(-z^3)^{71} \cdot (10z^2)^1 =$$

$$= (-1z^3)^{71} \cdot (10z^2)^1$$

$$= \left((-1)^{71} z^{3 \cdot 71} \right) \cdot \left(10^1 z^{2 \cdot 1} \right)$$

$$\textcircled{*} = \left(-1 z^{213} \right) \cdot \left(10 z^2 \right)$$

$$= (-1) \cdot 10 z^{213+2}$$

$$= -10 z^{215}$$

71 = ποσός
αριθμός

$$(12x^3)^2 \cdot (\underline{-1}^{200} x^{100})^2 \cdot (\underline{1}^{1001} x^{25})^2 \cdot (\underline{-1}^{21} x^4)^{8000}$$

$$(12x^3)^2 \cdot (1x^{100})^2 \cdot (1x^{25})^2 \cdot (-1x^4)^{8000}$$

$$(12^2 x^{3 \cdot 2}) \cdot (1^2 x^{100 \cdot 2}) \cdot (1^2 x^{25 \cdot 2}) \cdot (\underline{-1}^{8000} x^{4 \cdot 8000})$$

$$(144x^6) \cdot (1x^{200}) \cdot (1x^{50}) \cdot (1x^{32.000})$$

$$144 \cdot 1 \cdot 1 \cdot 1 x^{6+200+50+32.000}$$

$$144 x^{32.256}$$

$$1^{1001} = 1 \cdot 1 \cdot \dots \cdot 1 = 1$$

$$\underline{-1}^{8000} = 1, \text{ γιατί } 8000 \text{ είναι ζυγός}$$

$$\underline{-1}^{200} = 1, \text{ γιατί } 200 \text{ είναι ζυγός}$$

$$\underline{-1}^{21} = -1, \text{ γιατί } 21 \text{ είναι μόνος}$$

$$\left((-200 j^{2^2})^2 \right)^{(-1)^2}$$

$$= \left((-200 j^4)^2 \right)^1$$

$$= \left((-200)^2 j^{4 \cdot 2} \right)^1$$

$$= \left(40.000 j^8 \right)^1$$

$$= 40.000 j^{8 \cdot 1}$$

$$= 40.000 j^8$$

$$\begin{aligned} 2^2 &= 2 \cdot 2 = 4 \\ (-1)^2 &= (-1) \cdot (-1) \\ &= 1 \end{aligned}$$

$$\begin{aligned}
 & (-\theta^2)^5 \cdot \theta \cdot (-\theta) \cdot \theta \cdot (-\theta) \cdot \theta \cdot (\theta^2)^6 \cdot (-\theta) \cdot \theta \cdot (-\theta) \cdot \theta \\
 & (-1)^5 \theta^{2 \cdot 5} \cdot \theta \cdot (-\theta) \cdot \theta \cdot (-\theta) \cdot \theta \cdot (\theta^2)^6 \cdot (-\theta) \cdot \theta \cdot (-\theta) \cdot \theta \\
 & (-1 \theta^{10}) \cdot \theta \cdot (-\theta) \cdot \theta \cdot (-\theta) \cdot \theta \cdot (1 \theta^{12}) \cdot (-\theta) \cdot \theta \cdot (-\theta) \cdot \theta
 \end{aligned}$$

$$\begin{aligned}
 & (-1) \cdot 1 \cdot (-1) \cdot 1 \cdot (-1) \cdot 1 \cdot 1 \cdot (-1) \cdot 1 \cdot (-1) \cdot 1 \cdot \theta \\
 & \underline{1 \cdot 1 \cdot 1 \cdot 1 \cdot 1 \cdot 1} \cdot \underline{(-1) \cdot (-1) \cdot (-1) \cdot (-1) \cdot (-1)} \theta^{31}
 \end{aligned}$$

$$\begin{aligned}
 & 1 \cdot (-1)^5 \theta^{31} \\
 & 1 \cdot (-1) \theta^{31} \\
 & -1 \theta^{31}
 \end{aligned}$$

$(-1)^5 = -1$, γιατί
 20 5 είναι ímpar

$$\left((-\beta^{2^3})^{3^2} \right)^{(-1)^8}$$

$$= \left((-\beta^8)^9 \right)^1$$

$$= \left((-1)^9 \beta^{8 \cdot 9} \right)^1$$

$$= \left(-1 \beta^{72} \right)^1$$

$$= (-1)^1 \beta^{72}$$

$$= -1 \beta^{72}$$

$$2^3 = 2 \cdot 2 \cdot 2 = 8$$

$$3^2 = 3 \cdot 3 = 9$$

$$(-1)^8 = 1,$$

γιατί

8 είναι

ζυγός

$$\left((-1 \beta^2)^3 \cdot (2 \beta^5)^2 \right)^2 =$$

$$\left(((-1)^3 \beta^{2 \cdot 3}) \cdot (2^2 \beta^{5 \cdot 2}) \right)^2 =$$

$$\left((-1 \beta^6) \cdot (4 \beta^{10}) \right)^2 =$$

$$\left((-1) \cdot 4 \beta^{6+10} \right)^2 =$$

$$\left(-4 \beta^{16} \right)^2 =$$

$$(-4)^2 \beta^{16 \cdot 2} = 16 \beta^{32}$$

$$\begin{aligned} (-4)^2 &= (-4) \cdot (-4) \\ &= 4 \cdot 4 = 16 \end{aligned}$$

$$(-1)^3 = -1$$

3 even powers

$$\left((-\beta^5)^2 \right)^3 \cdot 3\beta^8 \Big)^4 \cdot 8\beta^{200000000}$$

$$\left((-1)^2 \beta^{5 \cdot 2} \right)^3 \cdot 3\beta^8 \Big)^4 \cdot 8\beta^{200000000}$$

$$\left((1\beta^{10})^3 \cdot 3\beta^8 \right)^4 \cdot 8\beta^{200000000}$$

$$\left((1^3 \beta^{10 \cdot 3}) \cdot 3\beta^8 \right)^4 \cdot 8\beta^{200000000}$$

$$\left(1\beta^{30} \cdot 3\beta^8 \right)^4 \cdot 8\beta^{200000000}$$

$$(1 \cdot 3 \beta^{30+8})^4 \cdot 8\beta^{200000000} \Rightarrow$$

$$= (3 \beta^{38})^4 \cdot 8 \beta^{2000000000}$$

$$= 3^4 \beta^{38 \cdot 4} \cdot 8 \beta^{2000000000}$$

$$= 81 \beta^{152} \cdot 8 \beta^{2000000000}$$

$$= 81 \cdot 8 \beta^{152 + 2000000000}$$

$$= 648 \beta^{2000000.152}$$