

1532

α) Πρέπει: $x - 4 \neq 0 \Leftrightarrow x \neq 4$

Άρα: $A = \mathbb{R} - \{4\}$

$$\begin{aligned} f(x) &= \frac{x^3 - 16x}{x - 4} = \frac{x \cdot (x^2 - 16)}{x - 4} = \frac{x \cdot (x-4) \cdot (x+4)}{x-4} = \\ &= x \cdot (x-4) = x^2 + 4x, \quad x \neq 4 \end{aligned}$$

β) $f(x) = 32 \xrightarrow{(\alpha)} x^2 + 4x = 32 \Leftrightarrow x^2 - 4x + 32 = 0$

$$\Delta = 16 - 4 \cdot (-32) = 16 + 128 = 144 > 0$$

$$x_{1,2} = \frac{-4 \pm \sqrt{144}}{2} = \frac{-4 \pm 12}{2} \begin{cases} \rightarrow x_1 = \frac{-16}{2} = -8 \\ \rightarrow x_2 = \frac{8}{2} = 4 \end{cases}$$