

$$\begin{aligned}
 A &= \lim_{x \rightarrow 0} \frac{xf(2x) - f(-x)\eta\mu(3x)}{2x^2 - \eta\mu^2 x} \stackrel{\substack{\text{διαφορούμε αριθμητή} \\ \text{και παρονομαστή με } x^2}}{=} \lim_{x \rightarrow 0} \frac{\frac{xf(2x) - f(-x)\eta\mu(3x)}{x^2}}{\frac{2x^2 - \eta\mu^2 x}{x^2}} = \\
 &= \lim_{x \rightarrow 0} \frac{\cancel{x}f(2x) - \frac{f(-x)\eta\mu(3x)}{x^2}}{\frac{2\cancel{x}^2}{\cancel{x}^2} - \frac{\eta\mu^2 x}{x^2}} = \lim_{x \rightarrow 0} \frac{\frac{f(2x)}{x} - \frac{f(-x)}{x} \cdot \frac{\eta\mu(3x)}{x}}{2 - \frac{\eta\mu^2 x}{x^2}} = \\
 &= \frac{\lim_{x \rightarrow 0} \frac{f(2x)}{x} - \lim_{x \rightarrow 0} \frac{f(-x)}{x} \cdot \lim_{x \rightarrow 0} \frac{\eta\mu(3x)}{x}}{2 - \lim_{x \rightarrow 0} \frac{\eta\mu^2 x}{x^2}} \quad (1)
 \end{aligned}$$

Όμως

$$\begin{aligned}
 \lim_{x \rightarrow 0} \frac{f(2x)}{x} &\stackrel{\substack{\text{θέτουμε } y=2x \\ \text{οπότε } x=\frac{y}{2} \\ \text{όταν } x \rightarrow 0, y \rightarrow 0}}{=} \lim_{y \rightarrow 0} \frac{f(y)}{\frac{y}{2}} = \lim_{y \rightarrow 0} \frac{2f(y)}{y} \stackrel{\lim_{x \rightarrow 0} \frac{f(x)}{x}=2}{=} 2 \cdot 2 = 4 \quad (2)
 \end{aligned}$$

$$\begin{aligned}
 \lim_{x \rightarrow 0} \frac{f(-x)}{x} &\stackrel{\substack{\text{θέτουμε } y=-x \\ \text{οπότε } x=-y \\ \text{όταν } x \rightarrow 0, y \rightarrow 0}}{=} \lim_{y \rightarrow 0} \frac{f(y)}{-y} = -\lim_{y \rightarrow 0} \frac{f(y)}{y} \stackrel{\lim_{x \rightarrow 0} \frac{f(x)}{x}=2}{=} -2 \quad (3)
 \end{aligned}$$

$$\begin{aligned}
 \lim_{x \rightarrow 0} \frac{\eta\mu(3x)}{x} &\stackrel{\substack{\text{πολλαπλασιάζουμε αριθμητή} \\ \text{και παρονομαστή με } 3}}{=} \lim_{x \rightarrow 0} \frac{3\eta\mu(3x)}{3x} \stackrel{\lim_{x \rightarrow 0} \frac{\eta\mu 3x}{3x}=1}{=} 3 \cdot 1 = 3 \quad (4)
 \end{aligned}$$

Έτσι τελικά

$$(1) \stackrel{(2),(3),(4)}{\Rightarrow} A = \frac{4 - (-2) \cdot 3}{2 - 1^2} = \boxed{10}$$