

eq

$$\begin{aligned} & \lim_{x \rightarrow \infty} \frac{\ln(e^{2x^2} + 1)}{x^2 + 1} \\ & \lim_{x \rightarrow \infty} \frac{\ln(e^{2x^2}(1 + e^{-2x^2}))}{x^2 + 1} \\ & \lim_{x \rightarrow \infty} \frac{2x^2 + \ln(1 + e^{-2x^2})}{x^2 + 1} \\ & \frac{2x^2 + \ln(1 + e^{-2x^2})}{x^2} \\ & \lim_{x \rightarrow \infty} \frac{x^2}{x^2 + 1} \\ & \frac{x^2}{x^2} \\ & 2 + \frac{\ln(1 + e^{-2x^2})}{x^2} \\ & \lim_{x \rightarrow \infty} \frac{1 + \frac{1}{x^2}}{1 + \frac{1}{x^2}} \\ & \frac{2 + 0}{1 + 0} \end{aligned}$$

Q.E.D.:

$$\lim_{x \rightarrow \infty} \frac{\ln(e^{2x^2} + 1)}{x^2 + 1} = 2$$

lim from x toward infinity $\{\{\ln(e^{2x^2} + 1)\} \text{ over } \{x^2 + 1\}\}$ newline

lim from x toward infinity $\{\{\ln(e^{2x^2} (1 + e^{-2x^2}))\} \text{ over } \{x^2 + 1\}\}$ newline

lim from x toward infinity $\{\{2x^2 + \ln(1 + e^{-2x^2})\} \text{ over } \{x^2 + 1\}\}$ newline

lim from x toward infinity $\{\{2x^2 + \ln(1 + e^{-2x^2})\} \text{ over } \{x^2\} \text{ over } \{\{x^2 + 1\} \text{ over } x^2\}\}$ newline

lim from x toward infinity $\{\{2 + \{\ln(1 + e^{-2x^2})\} \text{ over } \{x^2\}\} \text{ over } \{1 + 1 \text{ over } \{x^2\}\}\}$ newline

$\{2 + 0\} \text{ over } \{1 + 0\}$ newline newline

Q.E.D.: newline newline

lim from x toward infinity $\{\{\ln(e^{2x^2} + 1)\} \text{ over } \{x^2 + 1\}\} = 2$