Задача 1.1 (Решение)

Найти предел

$$\lim\_{x\to 0}\frac{arctg(sin2x-tg2x)∙tg9x}{ln⁡(cos5x)∙\left(e^{5x}-e^{3x}\right)^{2}}=$$

$$=\lim\_{x\to 0}\frac{(sin2x-tg2x)∙9x}{ln⁡(1+(cos5x-1))∙\left(e^{3x}\right)^{2}\left(e^{2x}-1\right)^{2}}=$$

$$=\lim\_{x\to 0}\frac{sin2x∙(cos2x-1)∙9x}{cos2x∙(cos5x-1)∙e^{6x}\left(2x\right)^{2}}=$$

$$=\lim\_{x\to 0}\frac{2x∙\frac{-4x^{2}}{2}∙9x}{1∙\frac{-25x^{2}}{2}∙1∙4x^{2}}=\frac{18}{25}$$

Ответ: $\frac{18}{25}$