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$$\lim_{x\to+\infty} \sqrt{\frac{3^x + e^{-x} + x^2 \operatorname{arctg} x}{3^{x+2} - (\operatorname{tgh} 2x)\log x}} =$$

$$= \lim_{x\to+\infty} \sqrt{\frac{\frac{3^x}{3^x}\left(1 + \frac{1}{(3e)^x} + \frac{x^2}{3^x}\operatorname{arctg} x\right)}{3^2 - \operatorname{tgh} 2x \cdot \frac{\log x}{3^x}}} =$$

$$= \sqrt{\frac{1}{9}} = \frac{1}{3}$$