2 ~~4~~

180

$$\lim_{x\to+\infty} \frac{x^2+5x+3}{x+1} e^{\operatorname{arctg}\frac{1}{x}} - \frac{2x^2+x+3}{2x-1} =$$

$$= \lim_{x\to+\infty} \frac{x^2+5x+3}{x+1} e^{\operatorname{arctg}\frac{1}{x}} - \frac{x^2+5x+3}{x+1} + \frac{x^2+5x+3}{x+1} - \frac{2x^2+x+3}{2x-1} =$$

$$= \lim_{x\to+\infty} \frac{x^2+5x+3}{x+1}\left(e^{\operatorname{arctg}\frac{1}{x}} - 1\right) + \frac{(2x-1)(x^2+5x+3) - (x+1)(2x^2+x+3)}{2x^2-x+2x-1} =$$

$$= \lim_{x\to+\infty} \frac{x^2+5x+3}{(x+1)x} \frac{\operatorname{arctg}\frac{1}{x}\, e^{\operatorname{arctg}\frac{1}{x}} - 1}{\frac{1}{x}} \cdot \frac{\operatorname{arctg}\frac{1}{x}}{\operatorname{arctg}\frac{1}{x}} +$$

$$+ \lim_{x\to+\infty} \frac{2x^3+10x^2+6x-x^2-5x-3-2x^3-x^2-3x-2x^2-x-3}{2x^2+x-1} =$$

$$= 1 + \lim_{x \to +\infty} \frac{6x^2 - 3x - 6}{1x^2 + x - 1} =$$

$$= 1 + 3 = 4$$