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$$\lim_{x\to+\infty} \frac{x\,\mathrm{arctg}\,x + 2\sqrt{x}\,\mathrm{sen}\,x + 5}{\log\left(e^{2x} + x\,\mathrm{arctg}\,x + 1\right) + \cos x} =$$

$$= \lim_{x\to+\infty} \frac{x\left(\mathrm{arctg}\,x + \frac{2\,\mathrm{sen}\,x}{\sqrt{x}} + \frac{5}{x}\right)}{2x + \log\left(1 + \frac{x}{e^{2x}}\,\mathrm{arctg}\,x + \frac{1}{e^{2x}}\right) + \cos x} =$$

$$= \lim_{x\to+\infty} \frac{\mathrm{arctg}\,x + 2\frac{\mathrm{sen}\,x}{\sqrt{x}} + \frac{5}{x}}{2 + \frac{\log\left(1 + \frac{x}{e^{2x}}\,\mathrm{arctg}\,x + \frac{1}{e^{2x}}\right)}{x} + \frac{\cos x}{x}} =$$

$$= \frac{\frac{\pi}{2}}{2} = \frac{\pi}{4}$$