$$\lim_{x\to+\infty}\left(\operatorname{sen}\frac{2}{x}\right)^{\pi-2\operatorname{arctg}x} =$$

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

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

$$=\lim_{x\to+\infty} e^{\frac{\pi-2\operatorname{arctg}x}{\operatorname{sen}\frac{2}{x}}\cdot\left(\operatorname{sen}\frac{2}{x}\log\operatorname{sen}\frac{2}{x}\right)}$$

$$=\lim_{x\to+\infty} e^{\frac{(\pi-2\operatorname{arctg}x)}{\frac{2}{x}}\frac{\frac{2}{x}}{\operatorname{sen}\frac{2}{x}}\left(\operatorname{sen}\frac{2}{x}\log\operatorname{sen}\frac{2}{x}\right)}$$

$$= e^{-1\cdot1\cdot0} = e^{0} = 1$$

vedi [illegible]

$$\frac{\pi - 2\,\mathrm{arctg}\, x}{\frac{2}{x}}$$

$$y = \pi - 2\,\mathrm{arctg}\, x$$

$$x = \mathrm{tg}\,\frac{\cancel{\cot}\,\pi + y}{2} = \frac{\mathrm{sen}\left(\frac{\pi}{2} + \frac{y}{2}\right)}{\cos\left(\frac{y}{2} + \frac{\pi}{2}\right)} = -\frac{1}{\mathrm{tg}\,\frac{y}{2}}$$

$$= \frac{y}{-\frac{2}{\frac{1}{\mathrm{tg}\,\frac{y}{2}}}} = \frac{y}{-2\cdot\mathrm{tg}\,\frac{y}{2}} = \frac{1}{\frac{-\cancel{2}\,\mathrm{tg}\,\frac{y}{2}}{\cancel{2}\,\frac{y}{2}}}$$

$$\lim_{x \to +\infty} \frac{\pi - 2\,\mathrm{arctg}\, x}{\frac{2}{x}} = \lim_{y \to 0} \frac{1}{-\frac{\mathrm{tg}\,\frac{y}{2}}{\frac{y}{2}}} = -1$$