$$\lim_{x\to+\infty} \sqrt{3x^2+2x+2}-\sqrt{3x^2+x}$$

$$\lim_{x\to 0} (\cos x)^{\left(\frac{1}{\operatorname{sen} x}\right)^2}$$

$$\lim_{x\to 1} \frac{\ln(2x-1)}{x^2-\sqrt{x}}$$

$$\lim_{x\to+\infty}\left(\sqrt{3x^2+2x+2}-\sqrt{3x^2+x}\right)=\underset{\text{INDETERMINACIÓN}}{(\infty-\infty)} = \lim_{x\to+\infty}\frac{\left(\sqrt{3x^2+2x+2}-\sqrt{3x^2+x}\right)\left(\sqrt{3x^2+2x+2}+\sqrt{3x^2+x}\right)}{\sqrt{3x^2+2x+2}+\sqrt{3x^2+x}}=$$

$$=\lim_{x\to+\infty}\frac{\left(\cancel{\sqrt{3x^2+2x+2}}\right)^{\cancel{2}}-\left(\cancel{\sqrt{3x^2+x}}\right)^{\cancel{2}}}{\sqrt{3x^2+2x+2}+\sqrt{3x^2+x}}=\lim_{x\to+\infty}\frac{\cancel{3x^2}+2x+2-(\cancel{3x^2}+x)}{\sqrt{3x^2+2x+2}+\sqrt{3x^2+x}}=$$

$$=\lim_{x\to+\infty}\frac{x+2}{\sqrt{3x^2+2x+2}+\sqrt{3x^2+x}}=\lim_{x\to+\infty}\frac{\frac{x}{x}+\frac{2}{x}}{\sqrt{\frac{3x^2}{x^2}+\frac{2x}{x^2}+\frac{2}{x^2}}+\sqrt{\frac{3x^2}{x^2}+\frac{x}{x^2}}}=\lim_{x\to+\infty}\frac{1+2/x}{\sqrt{3+\frac{2}{x}+\frac{2}{x^2}}+\sqrt{3+\frac{1}{x}}}=$$

$$=\frac{1}{\sqrt{3}+\sqrt{3}}=\boxed{\frac{1}{2\sqrt{3}}}$$

$$\lim_{x \to 0} (\cos x)^{\left(\frac{1}{\operatorname{sen} x}\right)^2} = \cos 0^{\left(\frac{1}{\operatorname{sen} 0}\right)^2} = \underset{\text{INDETERMINACIÓN}}{\left(1^{\infty}\right)} \overset{(*)}{=} e^{\lim\limits_{x \to 0} \left(\frac{1}{\operatorname{sen} x}\right)^2 (\cos x - 1)} =$$

$$= e^{\lim\limits_{x \to 0} \frac{\cos x - 1}{\operatorname{sen}^2 x}} = e^{\frac{0}{0}} \overset{\text{L'Hôpital}}{=} e^{\lim\limits_{x \to 0} \frac{-\cancel{\operatorname{sen} x}}{2 \cancel{\operatorname{sen} x} \cdot \cos x}} = e^{\lim\limits_{x \to 0} \frac{-1}{2 \cos x}} = e^{-1/2} = \boxed{\frac{1}{\sqrt{e}}}$$

(*) UTILIZAMOS $\lim\limits_{x \to a} f(x)^{g(x)} = e^{\lim\limits_{x \to a} g(x) \left[f(x) - 1 \right]}$

$$\lim_{x \to 1} \frac{\ln(2x-1)}{x^2 - \sqrt{x}} = \frac{\ln(2 \cdot 1 - 1)}{1^2 - \sqrt{1}} = \left(\frac{0}{0}\right) \overset{\text{L'Hôpital}}{=} \lim_{x \to 1} \frac{\frac{1}{2x-1} \cdot 2}{2x - \frac{1}{2\sqrt{x}}} = \frac{\frac{2}{1}}{2 - \frac{1}{2}} = \frac{2}{3/2} = \boxed{\frac{4}{3}}$$