

EJERCICIO H1BE2494:

$$\begin{aligned} \lim_{x \rightarrow 2} \left(\frac{3}{\sqrt{x}} \right)^{\frac{2}{x-2}} &= (1^\infty) = \\ &= \lim_{x \rightarrow 2} \left(1 + \frac{3}{\sqrt{x}} - 1 \right)^{\frac{2}{x-2}} = \\ &= \lim_{x \rightarrow 2} \left(1 + \frac{3 - (\sqrt{x})}{\sqrt{x}} \right)^{\frac{2}{x-2}} = \\ &= \lim_{x \rightarrow 2} \left(1 + \frac{x-2}{\sqrt{x}} \right)^{\frac{2}{x-2}} = \\ &= \lim_{x \rightarrow 2} \left(1 + \frac{1}{\frac{\sqrt{x}}{x-2}} \right)^{\frac{\sqrt{x}}{x-2} \cdot \frac{x-2}{\sqrt{x}} \cdot \frac{2}{x-2}} = \\ &= e^{\lim_{x \rightarrow 2} \frac{2}{\sqrt{x}}} = e^{\frac{2}{\sqrt{2}}} = \sqrt[3]{e^2} \end{aligned}$$