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$$\lim_{x \rightarrow 0} \left(\frac{2^x + 5^x}{3^x + 4^x} \right)^{\frac{1}{x}} =$$

$$\frac{1}{x} \log \frac{2^x + 5^x}{3^x + 4^x} =$$

$$= \lim_{x \rightarrow 0} e$$

$$\frac{1}{x} \log \left[1 + \left(\frac{2^x + 5^x}{3^x + 4^x} - 1 \right) \right]$$

$$= \lim_{x \rightarrow 0} e$$

$$x \rightarrow 0$$

$$\frac{1}{x} \left(\frac{2^x + 5^x}{3^x + 4^x} - 1 \right) \log \left[1 + \left(\frac{2^x + 5^x}{3^x + 4^x} - 1 \right) \right]$$

$$= \lim_{x \rightarrow 0} e$$

$$x \rightarrow 0$$

$$\frac{1}{x} \frac{2^x + 5^x - 3^x - 4^x}{3^x + 4^x} \log \left[1 + \frac{\left(\frac{2^x + 5^x}{3^x + 4^x} - 1 \right)}{\left(\frac{2^x + 5^x}{3^x + 4^x} - 1 \right)} \right]$$

$$= \lim_{x \rightarrow 0} e$$

$$x \rightarrow 0$$

$$\frac{1}{3^x + 4^x} \left(\frac{2^x - 1}{x} + \frac{5^x - 1}{x} - \frac{3^x - 1}{x} - \frac{4^x - 1}{x} \right)$$

$$= \lim_{x \rightarrow 0} e$$

$$x \rightarrow 0$$

$$\cdot \log \left[1 + \frac{\left(\frac{2^x + 5^x}{3^x + 4^x} - 1 \right)}{\left(\frac{2^x + 5^x}{3^x + 4^x} - 1 \right)} \right]$$

$$\frac{1}{2} (\log 2 + \log 5 - \log 3 - \log 4) \cdot 1 =$$

$$= e$$

$$\frac{1}{2} \left(\log \frac{10}{12} \right) \log \sqrt{\frac{5}{6}} =$$

$$= e$$

$$= \sqrt{\frac{5}{6}}$$