



次の極限を求めよ。

$$\lim_{n \rightarrow \infty} \sqrt{n+1}(\sqrt{n+2} - \sqrt{n-1})$$

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$$\begin{aligned} \lim_{n \rightarrow \infty} \sqrt{n+1} \left( \frac{\sqrt{n+2} - \sqrt{n-1}}{\sqrt{n+2} + \sqrt{n-1}} \right) &= \lim_{n \rightarrow \infty} \frac{3\sqrt{n+1}}{\sqrt{n+2} + \sqrt{n-1}} \\ &= \lim_{n \rightarrow \infty} \frac{3\sqrt{1 + \frac{1}{n}}}{\sqrt{1 + \frac{2}{n}} + \sqrt{1 - \frac{1}{n}}} \\ &= \frac{3}{2} \end{aligned}$$