

Result $\Rightarrow \lim_{n \rightarrow \infty} \frac{a_1 + a_2 + \dots + a_n}{n} = l$, if $\lim_{n \rightarrow \infty} a_n = l$

here $\lim_{n \rightarrow \infty} \frac{\sqrt{n+1} + \dots + \sqrt{n+n}}{n\sqrt{n}} = \lim_{n \rightarrow \infty} \frac{1}{n} \left[\sqrt{1+\frac{1}{n}} + \sqrt{1+\frac{2}{n}} + \dots + \sqrt{1+\frac{n}{n}} \right]$

$\Rightarrow$ here let $a_n = \sqrt{1+\frac{n}{n}}$ then $\lim_{n \rightarrow \infty} a_n = \sqrt{1+1} = \sqrt{2}$

$\Rightarrow$ then by above result, $\lim_{n \rightarrow \infty} \frac{\sqrt{n+1} + \dots + \sqrt{n+n}}{n\sqrt{n}} = \boxed{\sqrt{2}}$ or $\boxed{1.41}$ ✓