

Evaluating an Interesting Limit

Using $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = e$, calculate:

1. $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^{3n}$

2. $\lim_{n \rightarrow \infty} \left(1 + \frac{2}{n}\right)^{5n}$

3. $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{2n}\right)^{5n}$

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