In the following create partial sums from the sequences. First make **a** into a function and then create the partial sums **s**. Use the **add** function instead of the **sum** function. It is safer. Do the sums converge or not? Explain why.

1. *Let a be the sequence* $1, \frac{1}{2}, \frac{1}{3}, \ldots$ *where the nth term is* $\frac{1}{n}$.

2. *Let a be the sequence* $1, \frac{1}{4}, \frac{1}{9}, \ldots$ *where the nth term is* $\frac{1}{n^2}$

3. *Let a be the sequence* $\frac{1}{\ln(2)}, \frac{1}{\ln(3)}$ ..

. *where the nth term is* $\frac{1}{\ln(n)}$

4. *Let a be the sequence* $\frac{1}{e^1}, \frac{1}{e^2}, \frac{1}{e^3}$ ... *where the nth term is* $\frac{1}{e^n}$.

5. *Let a be the sequence* $88 \cdot \left(\frac{4}{5}\right), 88 \cdot \left(\frac{4}{5}\right)^2, 88 \cdot \left(\frac{4}{5}\right)^3$ ..

. *where the nth term is* $88 \cdot \left(\frac{4}{5}\right)^n$

6. *Let a be the sequence* $2, \frac{2^2}{2!}, \frac{2^3}{3!}, \frac{2^4}{4!}, \ldots \quad \frac{2^n}{n!}$ ...

7. *Let a be the sequence* $1, -1, 1, -1, 1, -1$ ..

. *where the nth term is* $(-1)^{n+1}$

8. *Let the sequence be* $1, -\frac{1}{2}, \frac{1}{3}, -\frac{1}{4}, \frac{1}{5} .. \frac{(-1)^{n+1}}{n}$

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