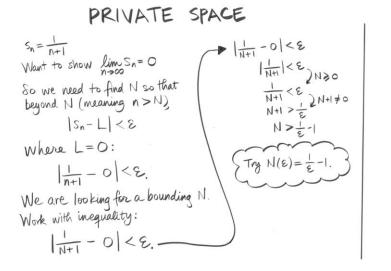
Approaching Mathematical Proofs

This is what you do on your own.

This is what you submit on your assignment.



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Claim. Let
$$s_n = \frac{1}{n+1}, n \ge 0$$
.

Then $\lim_{n\to\infty} s_n = 0$.

Proof. Let $\varepsilon > 0$
 $N(\varepsilon) = \frac{1}{\varepsilon} - 1$. $\varepsilon = 1$

Then $n > N(\varepsilon)$ implies:

 $n > N = \frac{1}{\varepsilon} - 1$

Note $n \ge 0$, so $n+1 > 0$.

 $\frac{1}{n+1} < \varepsilon$
 $\frac{1}{n+1} - 0 < \varepsilon$.

Hence for all $\varepsilon > 0$, we have $N(\varepsilon) \in \mathbb{R}$ (see $\varepsilon > 0$) such that $n > N$ implies $|s_n - 0| < \varepsilon$.

By defin of limit, we have $\lim_{n\to\infty} s_n = 0$.

Taken from Jackie Dewar, *Please, Do Tell*, Association for Women in Mathematics Newsletter, vol. 51, no. 5, September-October 2021, pp. 17-20; https://awm-math.org/wp-content/uploads/2021/08/AWM-Newsletter-Sept-Oct-2021-WEB.pdf.