## Quiz 2 Math 341

## Name

$\qquad$

Let $S=\left\{3-\frac{2}{n}, n=1,2 \ldots\right\}$
What is the supremum of $S$ ?
Use one of the four equivalent criteria to justify your answer.

## Solution.

Note that for every $n \in N, 3-\frac{2}{n}<3$, which means that 3 is an upper bound of $S$.

According to Criterion 4 (on page 38 of the textbook), given any $\epsilon>0$, we have to find an $n$ so that $3-\frac{2}{n}>3-\epsilon$. This is equivalent to $-\frac{2}{n}>-\epsilon$ or $n>\frac{2}{\epsilon}$

Since such an $n$ can be found, it follows that $3=\sup S$

