Problem 4

In each of Problems 1 through 4, sketch the graph of the given function. In each case determine whether $f$ is continuous, piecewise continuous, or neither on the interval $0 \leq t \leq 3$.

$$f(t) = \begin{cases} 
    t, & 0 \leq t \leq 1 \\
    3 - t, & 1 < t \leq 2 \\
    1, & 2 < t \leq 3 
\end{cases}$$

Solution

This function is piecewise continuous because it can be split up into a finite number of intervals where it is continuous. Also, the limit at each of the endpoints is finite.