508 Write a program to repeatedly print the current time, up until some given time.

After trying the question, scroll down to the solution.

§ Assuming time is an extended integer, and the given time is k, including recursive time, the specification is

$$P \;=\; \boldsymbol{w}' = \boldsymbol{w} + 0{\uparrow}(k-t) \wedge t' = t + 0{\uparrow}(k-t) \\ \wedge\, \forall n{:}\, 0,..0{\uparrow}(k-t) \cdot \boldsymbol{\mathcal{M}}_{\boldsymbol{w}+n} = \boldsymbol{\mathcal{T}}_{\boldsymbol{w}+n} = t+n$$

and the refinement is

$$P \;\Leftarrow\; \textbf{if } t<k \textbf{ then } c!\ t.\ \ t := t+1.\ \ P \textbf{ else } ok \textbf{ fi}$$