Chapter H10/EPH 16

10.2 Heat equation, \( \infty \) Domain

\[ u_t = k u_{xx}, \quad t > 0, \quad -\infty < x < \infty \]  
\[ u(x,0) = f(x), \quad -\infty < x < \infty \] \text{Initial Temp}

\[ u(-\infty,t) = 0, \quad u(\infty,t) = 0 \]  
\text{Replace} \quad u(0,t) = 0, \quad u(T,t) = 0? \text{No. But usually correct}

\[ u(x,t) \text{ bounded} \quad \leftarrow \text{New} \]