## The "AM-HM" Inequality

Prove by induction that $\forall n \geq 1$, if $x_{1} \cdots x_{n}$ are positive reals then $\left(\sum_{i=1}^{n} x_{i}\right)\left(\sum_{i=1}^{n} \frac{1}{x_{i}}\right) \geq n^{2}$.

