Macroeconomics II

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Problem Set 6:
Arithmetic of Growth Rates

Problem 1: Arithmetic of growth rates
As discussed in the Lecture Notes, **Lucas (1988)** in a key contribution to modern growth theory summarizes striking features of the **arithmetic of growth rates** as follows:

"Rates of growth of real per capita GNP are...diverse, even over sustained periods. For 1960-80 we observe, for example, India, 1.4% per year; Egypt, 3.4%; South Korea, 7.0%; Japan, 7.1%, the United States, 2.3%, the industrial economies averaged 3.6%." (Lucas, 1988, p.3)

Using these numbers, Lucas illustrates their implications as follows:

"...Indian incomes will double every 50 years; Korean every 10. An Indian will, on average, be twice as well off as his grandfather; a Korean 32 times."

Verify this statement!

($\rightarrow$ hint: the solution will be similar to the discussion of the half-life of growth dynamics discussed in the Lecture Notes)