1. Suppose that the production function is given by 
   \[ Y = 0.5 \sqrt{K} \sqrt{N} \]
   a. Derive the steady state levels of output per worker and capital per worker in terms of the saving rate, \( s \), and the depreciation rate, \( \delta \).
   b. Derive the equation for steady-state output per worker and steady-state consumption per worker in terms of \( s \) and \( \delta \).

2. Suppose that the economy’s production function is given by 
   \[ Y = K^\alpha N^{1-\alpha} \]
   And assume that \( \alpha = 1/3 \).
   a. Is this production function characterized by constant returns to scale?
   b. Are there decreasing returns to capital?
   c. Are there decreasing returns to labor?
   d. Transform the production function into a relation between output per worker and capital per worker.
   e. For a given saving rate, \( s \), and depreciation rate, \( \delta \), give an expression for capital per worker in the steady state.
   f. Give an expression for output per worker in the steady state.
   g. Solve for the steady state level of output per worker when \( s=0.32 \) and \( \delta=0.08 \).
   h. Suppose that the depreciation rate remains constant at \( \delta=0.08 \), while the saving rate is reduced by half, to \( s=0.16 \). What is the new steady-state output per worker?