Unit 07

Exercise 09 - Catch-up Growth in Emerging Markets

State your student ID: _____

Emerging markets often experience "catch-up growth" by adopting technology and best practices from developed countries. Suppose two countries, A and B, have the following GDP per capita growth rates:

- **Country A (Developed)**: SM% per year
- **Country B (Emerging)**: LG% per year

Tasks: If Country A's GDP per capita is 50,000 and Country B's is 20,000, calculate **how many years** it will take for Country B to catch up to Country A's GDP per capitaж Use the formula for compound growth to solve for t.

$$\mathbf{GDP_f = GDP_p\ (1+ r)^{\ t}}$$ (GDP_f – future GDP and GDP_p – present GDP)

Before doing so, calculate the values of SM (small growth rates) and LG (large growth rates):

- Take your student's ID number and replace all '0' zeroes with '1' (example: 66110003 => 66111113).
- Then, take the last 4 digits and keep adding them until you get a single digit (example: 1113 => 6).
- Next, take the last 2 digits and keep adding them until you get a single number (example: 13 => 4).
- As a result, you will have 2 digits; one will be larger and the other smaller. The larger one will be LG, and the smaller one will be SM (in our case, SM = 4 and LG = 6).

To score full marks, show your calculations in the space provided. Answer:

Country B will need _____years to catch up with Country A.