La Scuola d'Italia / Huson / IB Math DP2
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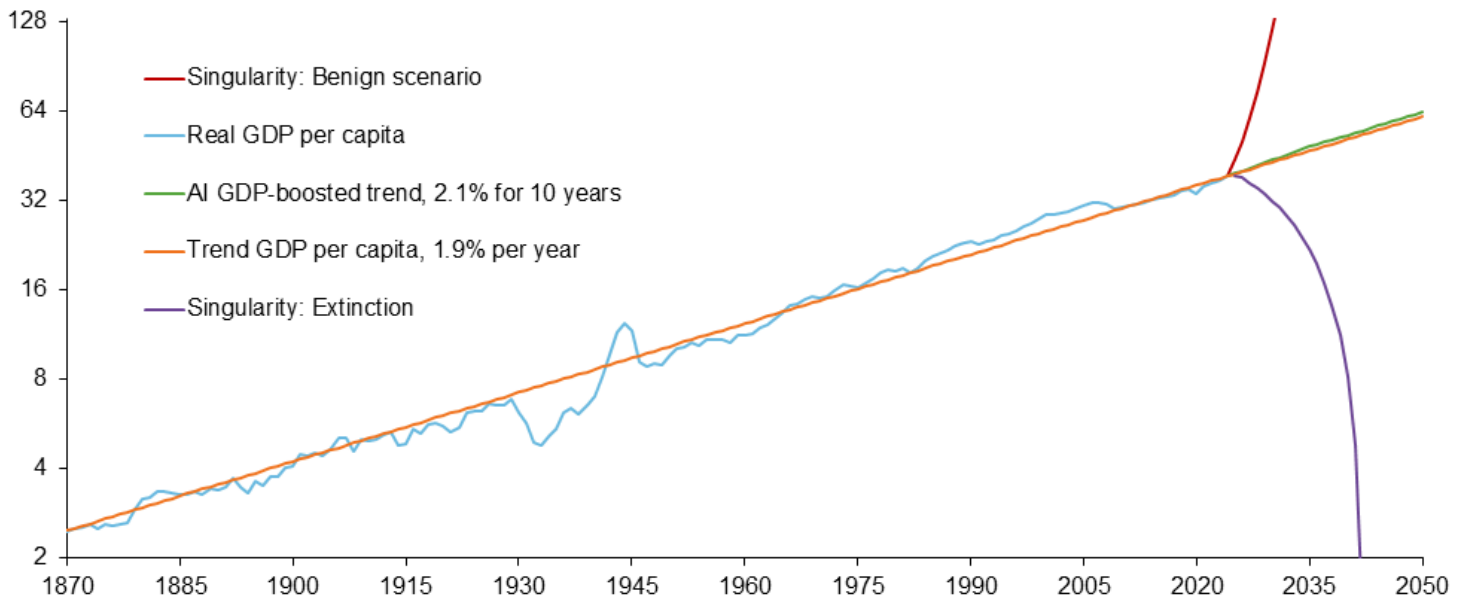**1.10 Homework: Exponential function with fit trendline**

Advances in AI will boost productivity, living standards over time
Mark A. Wynne and Lillian Derr
June 24, 2025

Artificial intelligence (AI), like many technologies before it, offers the potential to improve people's living standards. Such advances can be approximated by changes in gross domestic product (GDP) per capita over time—the rate of change in the amount of output per person.

Chart 1 shows GDP per capita from 1870 to 2024 along with scenarios, some of them extreme, depicting what could happen to living standards between now and 2050.

Chart 1
AI scenarios
1990 dollars (thousands), log scale

NOTES: The blue line is real gross domestic product (GDP) per capita in 1990 dollars. The orange line is a trend line fitted to the data for 1870–2024 with a trend growth rate of 1.9 percent per year. The red, green and purple lines are hypothetical paths for per capita GDP based on different scenarios.
SOURCES: Bureau of Economic Analysis; Haver Analytics; Macrohistory.net; United Nations; authors' calculations.

Federal Reserve Bank of Dallas

Look up the article and read or scan it.
https://www.dallasfed.org/research/economics/2025/0624

Questions

1. Who are the Federal Reserve Bank of Dallas? (i.e. what is this organization?)

2. Why is the y-axis labeled with values like this? (i.e. what does "log scale" mean?)

3. One scenario has AI boosting GDP growth from 1.9% per year to 2.1% for 10 years. How much money is that? (look up the GDP of the U.S.)