QUIZ 2

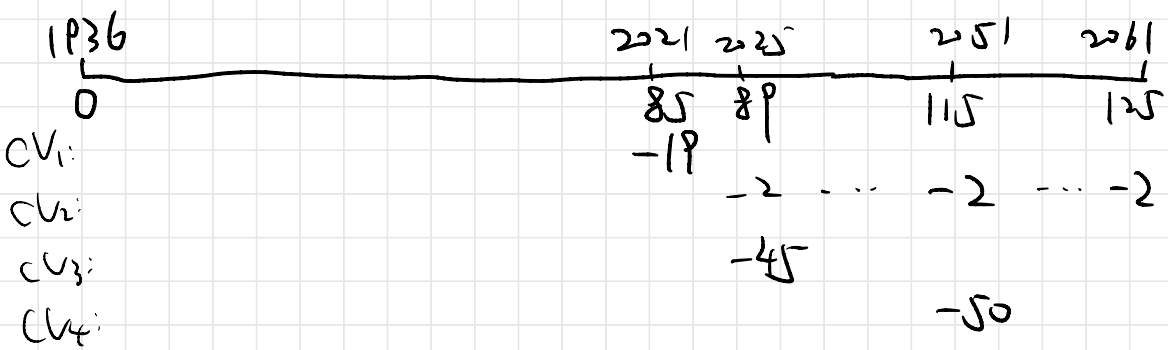
Show all work. Label and clearly explain your answer. This is very important. 1) You must explain how you arrived at your answer in order to get full credit. 2) If you do show your work, and your answer is wrong, you can still earn a substantial amount of credit depending on how serious the error is. 3) If your answer is wrong, and you don't show your work, you will get a zero.

Drake Jepping just discovered a one-time use, two-way time portal in the back room of a bowling alley. He can use the portal to travel to the time: Jan 1, 1936, stay for the day, and then return to Jan 1, 2021.

Drake wants to ~~cash in on~~ his discovery by depositing money into a bank account while in 1936. When he returns to 2021, Drake wishes to:

- Purchase a mansion for 19 million dollars immediately.
- Maintain a luxury lifestyle, which Drake estimates will cost $2 million per year for the next 40 years.
- Purchase a professional sports team in 2025 for an estimated cost of $45 million.
- Donate $50 million to his favorite business school on Jan 1, 2051.

If Drake can earn 13% percent per year (simple annual rate), how much does Drake need to deposit on Jan 1, 1936 in order to be able to pay for his planned future expenditures?



$$CV_1 = -19$$

$$CV_2 = \frac{-2}{0.13}\left(1 - \frac{1}{(1+0.13)^{40}}\right) = -15.26875$$

$$CV_3 = \frac{-45}{1.13^4} = -27.59934$$

$$CV_4 = \frac{-50}{1.13^{10}} = -1.27825$$

$$CV_{total} = CV_1 + CV_2 + CV_3 + CV_4$$

$$= 63.14634$$

$$CV_{1936} = \frac{CV_{total}}{1.13^{85}} = \frac{63.14634}{1.13^{85}} = 1.1439 \times 10^{-3}$$

(million)