

Your grandparents gave you a generous graduation gift of \$5000 with the stipulation that you invest the money for at least 10 years. You consider two options.

A. You can put your money into a savings account at City Bank which earns a compound interest rate of 3% per year, compounded monthly, meaning that each month the balance increases by one twelfth of 3% of the previous month's balance. You can also withdraw part or all of your money at the end of the 10 years.

B. The second option is to invest your money in an IRA (individual retirement account) where you cannot withdraw your money for 25 years; however, you will earn an average yearly rate of 7.3% (compounded annually).

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1. What would be the balance in your City Bank saving account at the end of 10 years?
 2. What would be the balance in your IRA account at the end of 10 years?
 3. What would be the balance in your City Bank savings account if you did not withdraw any money for 25 years?
 4. What would be the balance in your IRA after 25 years?

	Total Balance 10 years	Total Interest 10 years	Total Balance 25 years	Total Interest 25 years
City Bank				
IRA				

- For each account, how much interest did you obtain after 10 years and 25 years?
- There is a significantly greater amount of interest in the IRA account than the City Bank savings account after 25 years. What mathematical growth pattern or structure does this represent?
- Why does this growth pattern or structure create a significant difference in the balance of the two accounts?
- Represent this mathematical structure by writing an equation to represent the total balance in the savings account for the City Bank and the total balance in the IRA account.
- Using your equations, calculate your total savings for City Bank and the IRA account for both 10 and 25 years.
- Which investment option would you choose and why? Be prepared to justify your answer, using data from the table and your understanding of the mathematics.