

Decision Making in Finance: Future Value of an Investment

VI.A.2 What Makes Money Work for You?

Amanda is analyzing how to invest \$500. She is considering the two investments described below.

- **Savings accounts** are insured and vary in the way in which interest is calculated. Some accounts pay simple interest, but other accounts compound interest at varying frequencies. *Amanda is considering a savings account that pays 3.75% interest compounded annually.*
- A **certificate of deposit (CD)** is an interest-bearing instrument that is similar to a savings account—it is insured and pays interest. Unlike savings accounts, CDs have a fixed time period and usually a fixed interest rate. CDs also vary in the way in which interest is calculated. Sometimes the interest is compounded, but simple-interest CDs also exist. Simple interest is calculated only on the original deposit. The CD must be held until the date of maturity, at which time the original money deposited may be withdrawn with the accrued interest. Amanda is considering a CD that pays 4% simple annual interest for five years.

1. Amanda wants to evaluate each investment for the first five years. Use the spreadsheet below to record your calculations.

CD/Year	Beginning Balance	Interest Earned	Ending Balance	Savings Account/Year	Beginning Balance	Interest Earned	Ending Balance
1	\$500			1	\$500		
2				2			
3				3			
4				4			
5				5			

2. If Amanda is using this investment as an emergency fund, in which should she invest? Explain your reasoning.

3. Write a function rule to model each investment. Let y represent the value of the investment at the end of any year x .

CD:

Savings Account:

4. Use your calculator to find the value of each investment when Amanda retires in 40 years.

CD:

Savings Account:

5. Sketch the shape of the graph of each investment for 40 years. What makes them different? How is their difference related to the type of interest earned in each option?



6. Which investment would you make if you were Amanda? Why? Justify your reasoning.