

# Doing the math

Consistent return and preservation of capital can be key objectives in helping to achieve your long-term investment goals. An investment that seeks to maintain a steady course may be more appealing than one that has big upswings and downswings, alleviating the emotional roller-coaster you can experience from an investment that has inconsistent performance. Of course, there is no guarantee that any investment will produce consistent returns.

**By doing the math, you can see how important it is to choose investments that may avoid “surprises.”**

**Q. What would the hypothetical four-year annualized return<sup>1</sup> be for an investment that produced returns of 8% for three years and then dropped by 8% in the fourth year?**

**A) 6.0% B) 5.4% C) 4.1% D) 3.8%**

year 1	year 2	year 3	year 4	
8%	8%	8%		= ? Four-Year Annualized Return
			-8%	

$$[(1+8\%) \times (1+8\%) \times (1+8\%) \times (1-8\%)]^{1/4} - 1 = X$$

X = Four-Year Annualized Return

A. Due to the 8% loss, the hypothetical investment went from an annualized return of 8% in year three to an annualized return of 3.8% in year four.

**Therefore the answer is D.<sup>2</sup>**

**Strong returns can be diluted by one year of negative performance, making the investment work harder to make up the loss.**

**Q. What hypothetical return would the investment need to generate in year five to bring performance back to an annualized rate of return of 8%?**

**A) 11.5% B) 14.2% C) 20.0% D) 26.5%**

year 1	year 2	year 3	year 4	year 5	
8%	8%	8%		?	= 8%
			-8%		

$$[(1+8\%) \times (1+8\%) \times (1+8\%) \times (1-8\%) \times (1+n_5)]^{1/5} - 1 = 8\%$$

$n_5$  = Year Five Return

A. The investment would need to generate a return of 26.5% in year five to bring the annualized return back to 8%.

**Therefore the answer is D.<sup>3</sup>**

Historically, an investment that generates consistent returns is more beneficial than an investment with significant up and down swings. With consistent returns, you don't have to take additional risk to help you reach your investment goals.

The examples shown are hypothetical and for educational purposes only. They do not include any fees or charges that a particular investment may incur. All investments are subject to market risk and will fluctuate in value.



**For more information**

800-624-6782

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1. Annualized return is a multi-period, geometric average return used to designate the compound annual return for periods longer than one-year in terms of a one-year period. It is computed on a time-weighted basis by linking monthly, quarterly, or annual returns and taking the appropriate root of the result.
2. The four-year annualized return is calculated as follows: one plus the annual return in year one multiplied by one plus the annual return in year two multiplied by one plus the annual return in year three multiplied by one plus the annual return in year four raised to one over the total number of periods (four) minus one.
3. The calculation to find what the year five rate of return would need to be in order to bring the annualized rate of return back to 8% is as follows: one plus the annual return in year one multiplied by one plus the annual return in year two multiplied by one plus the annual return in year three multiplied by one plus the annual return in year four multiplied by one plus the annual return in year five ( $n_5$ ) raised to one over the total number of periods (five) minus one equals eight percent.

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