

Math 1030 #9b

Savings Plans and Investments

Total and Annual Return

Total Return -- the relative change in the investment value over a period of time.

$$\begin{aligned}\text{total return} &= \frac{\text{new value} - \text{starting principal}}{\text{starting principal}} \\ &= \frac{A - P}{P}\end{aligned}$$

Annual Return -- the average annual rate at which your money grew over a period of time.

$$\text{annual return} = \left(\frac{A}{P}\right)^{(1/Y)} - 1$$

EX 1:

Three years after buying 20 shares of XYZ stock for \$25 per share, you sell the stock for \$8500. Find the total and annual return on this investment.

Types of Investments

1. Stocks - gives you a share of ownership in a company. The only way to get money from a stock is to sell.
2. Bonds - a promise of future cash. The issuer pays simple interest and promises to pay the principal by some later date.
3. Cash - money deposited in bank accounts, CDs and U.S. Treasury Bills

Things to consider when investing

1. Liquidity - How easy is it to get to your money?
2. Risk - Is the principal invested at risk?
3. Return - How much return (total or annual) do you expect to earn?

EX 2:

Which investment in 1900 would have been worth more at the end of 2008?

- a) \$10 in stocks
- b) \$75 in bonds
- c) \$500 in cash

Historical Returns 1900-2008	
Category	Average Annual Return
Stocks	6.0%
Bonds	2.1%
Cash	1.0%