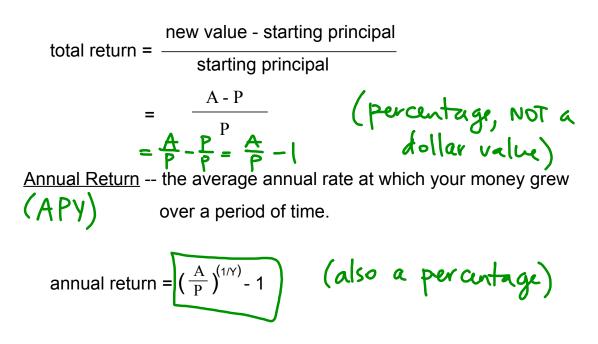


<u>Total Return</u> -- the relative change in the investment value over a period of time.



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.

$$P = 25(20) = 500 \qquad A = \$8500$$

$$total return: \qquad \frac{8500-500}{500} = \frac{8000}{500} = \frac{800}{5} = 16$$

$$= 1600\%$$

$$annul return: \qquad \left(\frac{8500}{500}\right)^{1/3} = [=17^{1/3} - [=1.57]28$$

$$= ($57.128\%)$$

## Types of Investments

- 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.
- 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

 $A = P (|+APR|)^{\gamma}$ 

 $A = 10((+0.06)^{108})$ 

A ~ \$ 5,407.96

compound interest formula, compounding annually

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

(a) 
$$P=10$$
,  $APR=6\%$ ,  $Y=108$   
 $A = 10(1+0.06)^{108}$   
 $A \simeq 5,407.96$   
(b)  $P=75$ ,  $APR=2.1\%$ ,  
 $Y=108$   
 $A=75(1+0.021)^{108}$   
 $A \simeq 707.69$