1- At what interest rate would $ 100,000 now be equivalent to $ 80,000 one year ago?

Solution1: $100,000 = 80,000 (1+i) \rightarrow (1+i) = 1.25 \rightarrow i = 0.25$ or 25%
Solution2: $100,000 - 80,000 = 20,000 \rightarrow 20,000/80,000 = 0.25$ or 25%

2- Badger Pump Company invested $500,000 five years ago in a new product line is now worth $1,000,000. What rate of return did the company earn (a) on a simple interest rate and (b) on a compound interest basis?

A) $1,000,000 - 500,000 = 500,000$ total interest

$500,000/5 = 100,000$ interest per year $\rightarrow 100,000/500,000 = 0.2$ or 20%

B) $F = P(1+i)^5 \rightarrow (1+i)^5 = 2 \rightarrow i = 14.87\%$

3- Use the rule 72 to estimate the interest rate that would be required for $5,000 to accumulate to $10,000 in 4 years.
Estimated $n = 72/i \rightarrow 4 = 72/i \rightarrow i = 72/40 = 18\%$

4- Construct a cash flow diagram for the following cash flows: $10,000 outflow at time zero, $3,000 per year outflow in years 1 through 3 and $9,000 inflow in years 4 through 7 at an interest rate of 10% per year and an unknown future amount in year 8.