Net present value questions

Economics, Money

How much will $1000 deposit in savings account earning a compound annual interest rate of 6% be worth at the end of the following number years?

- 3 years$1, 191
- 5 years$1, 338
- 10 years$1, 791

If you require a 9% return on your investment which would you prefer?

- $5, 000 todayPV = $5, 000
- $15, 000 five years from todayPV = $9, 748. 50
- $1, 000 per year for 15 yearsPV = $8061 Select option b

The Lancer Leasing Company has agreed to lease a hydraulic trencher to the Chavez Excavation Company for $20, 000 per year over the next 8 years. Lease payments are to be made at the beginning of each year.

Assuming that Lancer leasing company requires a 9% rate of return, what is the PV of payments? PV = $120, 663 4. The Mutual Assurance and life Company is offering an insurance policy under either of the following two terms:

- Make a series of 12 payments of $1, 200 at the beginning of each of the next 12 years (first payment being made today)
- Make a single lump-sum payment today of 10, 000 and receive coverage for the next 12 years If you had investment opportunities offering an 8% annual return, which alternative would you prefer?

PV = $9, 766. 66 b) PV = $10, 000 Select option a . A leading broker has advertisedmoneymultiplier certificates that will triple your money in 9 years;

that is if you buy one for $333. 33 today, it will pay you $1, 000 at the end of 9 years? What rate of return will you earn on this money multiplier certificates? i = 13. 073% 6. Given two following mutually exclusive alternatives:

Alternative A: initial cost $100, annual benefits $60, useful life 7 years

Alternative B: initial cost $60, annual benefits $20, useful life 7 years Which alternative is preferable if i = 12%?

PV = $173. 84 b) PV = $31. 28 Select option a . Project A and B have first costs of $10, 000 and $18, 000, respectively. Project A has net annual benefits of $5, 000 during each year of its 5 year useful life, after which it can be replaced identically. Project B has annual benefits of $6600 during each year of its 10 year life. Use present worth analysis, an interest rate of 30% per year and a 10 year analysis period to determine which project to select. Project A PV = $2767 Project B PV = $2407. 20 Select project A

The lining of a chemical tank in a certain manufacturing operation is replaced every 5 years at a cost of $7, 500.

A new type lining is now available which would last 10 years but costs $19, 500. The tank needs new lining now and you intend to use the tank for 40 years, replacing linings when necessary. Whit i of 10% compute the present worth of costs of 40 years of service for the 5-year and 10-year linings. 5 year lining PV of costs = $19, 347. 75 10 year lining PV of costs = $31, 025. 34 Select 5 year lining 9. A $25, 000 20-year loan with a nominal interest rate of 12% compounded monthly is to be repaid in a uniform series of payments of $275 per month (for 240 months).

The borrower wants to know how many payments, N, he will have to make until he owes only half of the amount borrowed initially. N = 179 10. $100, 000 dollars is deposited in a bank trust account that pays 16% interest compounded quarterly. Equal withdrawals are to be made from the account beginning one year from now and going for ever. Calculate the maximum amount of the equal annual withdrawal. $16, 984 11. A truck whose P is 26, 700 is being paid for in 24 uniform monthly installments, including i at 6% after making 7 payments the owner decides to pay off the remaining balance of the purchase price in one lump sum.

How big is this sum? $19, 231. 30 12. Assuming a 10% interest rate, determine which alternative should be selected: a) Alternative A: First cost $5, 300, uniform annual benefit $1, 800, useful life 4 years, salvage value $0 b) Alternative B: First cost $10, 700, uniform annual benefit $2, 100, useful life 8 years, salvage value $200

- A = $127. 85
- A = $ 112. 30

Select alternative A 13. An $8200 investment returned $2000 per year over a 5-year useful life. What was the rate of return on the investment? i = 7%