1. (15 points) A project has an initial cost of $159,000 and an estimated salvage value after 14 years of $74,000. Estimated average annual receipts are $31,000. Estimated average annual disbursements are $16,000. Assuming that annual receipts and distributions will be uniform for the 14 years, compute the prospective rate of return before taxes.

2. (20 points) A couple plans to purchase a home for $340,000. Property taxes are expected to be $1,200 per year while insurance premiums are estimated to be $1400 per year. Annual repair and maintenance are estimated at $1,950. An alternative is to rent a house of about the same size for $2,150 per month [approximate using $25,800 per year]. If an 8.0% return before-taxes is the couple's minimum rate of return, what must the resale value be 10 years from today for the cost of ownership to equal the cost of renting?

3. (15 points) An investor has $85,000 in a bank account at 6% interest compounded annually. They can use this sum to pay for the purchase of a plot of land. They expect that in 10 years they will be able to sell the land for $155,000. During that period they will have to pay $3,000 a year in property taxes and insurance. Should they make the purchase based on a rate of return analysis?

4. (40 points) A person is considering an investment situation that requires the investment of $160,000 at time zero and $230,000 at year one to generate profits of $99,000 per year starting at year two and increasing 2,000 per year due to inflation through year 10 (a 9 year profit period) with projected salvage value of $160,000 at the end of year 10. Determine the compound interest rate of return for these end of period funds. Draw the cumulative cash position diagram for the time zero through end of year 10 at the project rate of return.

5. Company A wishes to purchase a small operating mine, which has a remaining production life of 5 years, from Company B. Company B's selling price for the mine is $10,000,000. Company A also plans to invest $2,500,000 in upgrading the mine and its infrastructure in the first year, and no production will occur during the first year. Based on recent history and future projections, the mine is expected to generate an annual, before-tax profit of $5,500,000 for its remaining life, after the upgrades and starting in year 2. At the end of mine's production life, it is expected to cost $4,000,000 to close the mine, which will be incurred at the end of the 7th year. The salvage value of the mine's equipment is expected to be $1,500,000, which will also occur at the end of the 7th year. Company A requires a minimum rate of return of 15%.

    a. Determine if the purchase of this mine is a good investment using NPV. (20 pts)
    b. What is the PVR (10 pts)
    c. Draw a Cumulative NPV diagram for the project (30 pts)
    d. What is the Discounted Payback? (10 pts)