

SAMPLE EXAMINATION

- Instructions:
1. Open text, closed notes.
 2. Show all your calculations.

1. Mary Planner wants to save money for next Christmas. As such, she opens a Christmas Club account at her Credit Union in which the money will be compounded on a monthly basis. The annual rate paid on the account is 8%. Mary plans to deposit \$150.00 in the account every 2 months (beginning of January, March, May, July, and September. She is planning to close out this account on 1st November. How much money will she get from the account?
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2. John Smart has just inherited \$10,000 from his uncle's estate and wants to deposit this amount in a bank account. He wishes to maximize his earnings. The five banks in his neighborhood can each offer one type of account.

Bank	Nominal Annual Interest Rate	Compounding Frequency
A	10.14%	Monthly
B	10.3%	Semi-Annually
C	10.0%	Continuously
D	10.4%	Annually
E	10.1%	Daily

In which bank should John make his deposit? (Do your calculations to five decimal places)

3. A \$500,000 gift was given as a gift to a city for the construction and continued upkeep of a music hall. Annual maintenance for the hall is estimated at \$15,000. In addition, \$25,000 will be needed every 10 years for painting and major repairs. The hall is expected to have a useful life of 55 years. How much will be left for the initial construction costs after funds are allocated for the upkeep during the life of the hall. Deposited funds will earn 8% annual interest and the earnings are not subjected to taxes.
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4. Western Michigan University has constructed a parking ramp with 1,000 parking spaces at an initial cost of \$10 million. It paid 20% down payment and will pay off the loan for 80% of the cost at an annual interest rate of 6% over 30 years. Annual maintenance expenses for the ramp are estimated at \$20,000. Revenues from the ramp are expected in two ways: (i) monthly parking permits and flat parking rates for special events for an annual revenue of \$200,000, and (ii) meter parking at a charge of \$0.50/hour. Assume an occupancy rate for the meter parking to be 50% of the total spaces for 6 hours a day and 200 days per year.

Using an interest rate of 8%, compute the net annual worth for the parking ramp if the useful life is estimated to be 50 years. The ramp has 0 salvage value at that time.