Problem 1

Find the interest rate $i$ that makes the following cash flows equivalent?

![Cash Flows Diagram]

A. $i = 0.125\%$
B. $i = -0.125\%$
C. $i = 12.5\%$
D. $i = -12.5\%

Problem 2

You are considering investing $1,000 in the stocks of two companies. Company A's stock is expected to grow at an annual average rate of 11% for the first 5 years and 15% for the next 5 years. Company B's stock is expected to grow at an annual average rate of 14% for the first 4 years and 12% for the next 6 years. If you plan to keep both stocks for the next 10 years, which of the following statements is correct?

A. Both stocks have the same future worth at the end of year 10
B. Company A's stock has a $55 higher future worth at the end of year 10
C. Company B's stock has a $40 higher future worth at the end year 10
D. Company B's stock has a $26 higher future worth at the end year 10

Problem 3

You just deposited $1,500 into a savings account that pays 9% interest, compounded monthly. If you intend to take out $200 at the end of the first quarter, $400 at the end of the second quarter, and $800 at the end of the third quarter, what is the maximum amount that you can withdraw at the end of the 4th quarter?
A. \( X = \$176 \)
B. \( X = \$184 \)
C. \( X = \$191 \)
D. \( X = \$200 \)

**Problem 4**

Find the future worth \( F \) of the following cash flow at 10% interest, compounded annually.

A. \( F = \$14,008 \)
B. \( F = \$13,237 \)
C. \( F = \$17,219 \)
D. \( F = \$14,803 \)

**Problem 5**

Determine the two equal deposits (the first deposit required now and the second deposit at the end of year 5) so that you can withdraw \$1,000 at the end of each year for the next 10 years. Assume that money can earn 10% interest, compounded annually.
Problem 6

If you want to withdraw $150 at the end of every even year (i.e., years 2, 4, ... ), how much should you deposit at the end of every odd year (i.e., years 1, 3, ... )? Assume that the interest rate is 20%, compounded annually.

A. \( X = \$3,791 \)
B. \( X = \$3,072 \)
C. \( X = \$3,605 \)
D. \( X = \$6,145 \)

Problem 7

Find the equal payment amount \( A \), that makes the inflow series equivalent to the outflow series at \( i = 12\% \), compounded annually.

A. \( X = \$150 \)
B. \( X = \$137.5 \)
C. \( X = \$125 \)
D. \( X = \$100 \)
Problem 8

Find the value X, that makes the following two cash flow series equivalent at i = 10%?

A. \( A = 489 \)  
B. \( A = 547 \)  
C. \( A = 600 \)  
D. \( A = 636 \)
Problem 9

If you borrowed $12,000 payable in 6 equal annual installments, what would be the principal payment due at the end of year 1. Use $i = 13\%$ compounded annually.

A. $X = $636
B. $X = $765
C. $X = $858
D. $X = $920

Problem 10

Suppose you were to receive C at the end of each month for the next 10 years (Option 1). Alternatively, you can receive an equal end-of-year amount X, over the next 10 years (Option 2). What value of X would you prefer option 2 over option 1 at an interest rate of 12\%, compounded monthly?

A. $X$ greater than $12C(F/A, 12.68\%, 10)(A/F, 12.68\%, 10)$
B. $X$ greater than $C(F/A, 1\%, 12)$
C. $X$ greater than $C(F/A, 1\%, 120)(A/F, 12\%, 10)$
D. $X$ greater than $C(F/A, 1\%, 120)(A/F, 12.75\%, 10)$