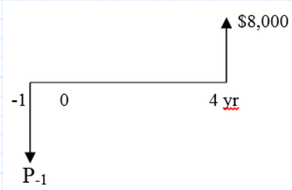
Test 1 - Solution

All problems were computed using formulas. The use of factors from the book may result in slightly different numbers.

1.

(a)

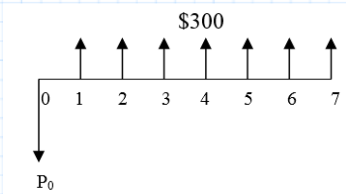


$$P_{minus\_1} := 8000 \cdot P_F(3\%, 5)$$

<---This contains Mathcad functions for computing the factors. It looks a little different than what we have used in class for factor notation, but should be easy enough to recognize. If you have questions, check with the professor.

$$P_{minus\_1} = 6900.9$$

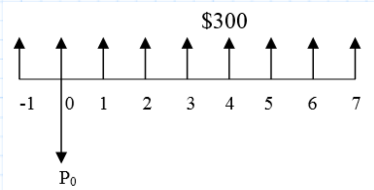
(b)



$$P_0 := 300 \cdot P_A(3\%, 7)$$

$$P_0 = 1869.1$$

(c)



$$P_0 := 300 \cdot P_A(3\%, 9) \cdot F_P(3\%, 2)$$

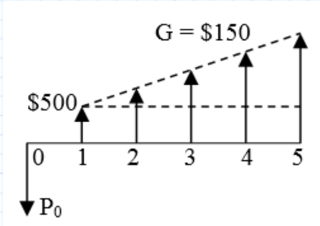
$$P_0 = 2478.1$$

or

$$P_0 := 300 \cdot F_A(3\%, 9) \cdot P_F(3\%, 7)$$

$$P_0 = 2478.1$$

(d)

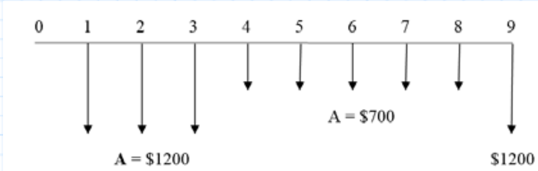


$$P_0 := 500 \cdot P_A(3\%, 5) + 150 \cdot P_G(3\%, 5)$$

$$P_0 = 3623.2$$

2.

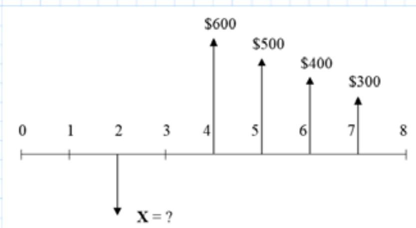
(a)



$$F_9 := 1200 \cdot P_A(7\%, 3) \cdot F_P(7\%, 9) + 700 \cdot F_A(7\%, 5) \cdot F_P(7\%, 1) + 1200$$

$$F_9 = 11297$$

(b)

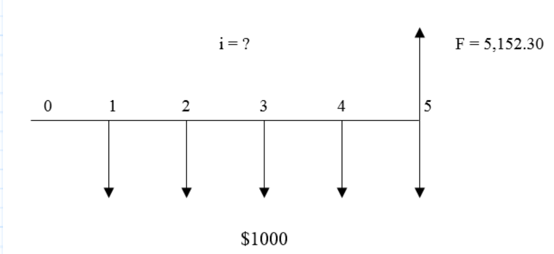


This problem involves a negative gradient. One solution would be to shift the values to Year 2.

$$X := (600 \cdot P_A(7\%, 4) - 100 \cdot P_G(7\%, 4)) \cdot P_F(7\%, 1)$$

$$X = 1451.3$$

3.

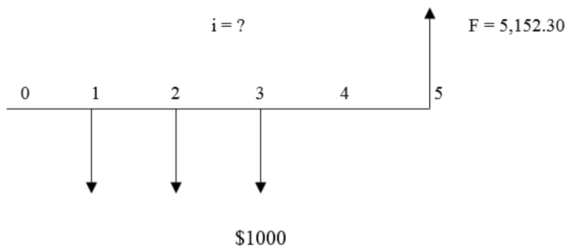


$$5152.30 = 1000 \cdot F_A(i, 5)$$

By using the tables or equations

$$1000 \cdot F_A(1.5\%, 5) = 5152.3$$

or see next page



$$5152.3 = 1000 \cdot F_A(i\%, 3) \cdot F_P(i\%, 2)$$

$$F_A(i\%, 3) \cdot F_P(i\%, 2) = 5.1523$$

In the equation below, set n = 3 in the first expression and n = 2 in the second expression

Try values for i until solution is reached.

$$i := 0.1934$$

$$\left(\left(\frac{(1+i)^3 - 1}{i}\right) \cdot (1+i)^2\right) = 5.1522$$