Chapter 4

[Finance](#)

Finance and Accounting Topic: Chapter 4 The answer is (c) The proportion of each payment that represents interest as opposed to repayment of principal would be lower if the interest rate were lower.

In the relationship of the interest rate and the monthly repayment that represent interest rates, the correct statement will be (c) because if the interest rate were lower, the payment would all be lower and any decrease would be as a result of interest rates. This implies that the portion of the loan that represents interest rates would be lower. Answer (b) is wrong because under any case the interest rate payment under 7 or 10 years would be the same as the interest rate is of the principal amount of $50, 000 times the rate of the interest rate, so the number of years will not matter under any time period.

2.

Which of the following statements is CORRECT?

The correct answer is (c), to solve for I, one must identify the value of I that causes the PV of the positive CFs to equal the absolute value of the PV of the negative CFs. This is, essentially, a trial and-error procedure that is easy with a computer or financial calculator but quite difficult otherwise.

The reason is that other methods will not give the correct answer.

3.

The answer is (d). 0. 3% higher

Explanation:

The formula for effective rate of r= (1+i/n)n- 1, for Riverside Bank, the effective annual interest rate will be, rR = (1 + (0. 065/12))^12 = 1. 067, while for the Midwest Bank, the effective annual interest rates will be, rM = (1 + (0. 07/1))^1 = 1. 07. Hence the effective annual rate is higher for

Midwest Bank by (1. 07 – 1. 067) 0. 003 or 0. 3%.

4.

The answer is (a), $3, 726.

Explanation

To arrive at the annual contribution for Ed’s trust, first we calculate the total amount that will accrue for Steve in the next 46 years using the formula, FV= (A.(1+i)˄n-1)/i(1+i) where A is the equal annuities, i is the interest rates and n the number of years (Wegner, p 530).

FV for Steve = ((2500. (1+0. 08) ˄46-1)/0. 08)x1. 08= $1, 129, 750. 38

Using the future value of annuity, we calculate the annual equal annuity for 41 years, from the above formula for FV, we make A the Subject of the formula, A= FV. i/ ((1+i) ˄n-1). (1+i)

=$1, 129, 750. 38*0. 08/((1. 08) ˄41)-1)*1. 08= $3, 725. 55 approximately $3, 726.

5.

John and Daphne are saving for their daughter Ellens college education. Ellen just turned 10

at (t = 0), and she will be entering college 8 years from now (at t = 8). College tuition and

expenses at State U. are currently $14, 500 a year, but they are expected to increase at a rate

of 3. 5% a year. Ellen should graduate in 4 years--if she takes longer or wants to go to

graduate school, she will be on her own. Tuition and other costs will be due at the beginning

of each school year (at t = 8, 9, 10, and 11).

So far, John and Daphne have accumulated $15, 000 in their college savings account (at t =

0). Their long-run financial plan is to add an additional $5, 000 in each of the next 4 years (at

t = 1, 2, 3, and 4). Then they plan to make 3 equal annual contributions in each of the

following years, t = 5, 6, and 7. They expect their investment account to earn 9%. How large

must the annual payments at t = 5, 6, and 7 be to cover Ellens anticipated college costs?

The answer is (d), $2, 292. 12

The explanation:

The total amount of fee needed for study from 8th to 11th year is, =$14, 500 x ((1. 035) ^8) + $14, 500 x ((1. 035) ^9) + $14, 500 x ((1. 035) ^10) + $14, 500 x ((1. 035) ^11) =$ 80, 479.

From their initial amount of $15, 000 at the rate of 9%, they will accumulate, 15, 000x (1+0. 09)^7 = 27, 420. 059. From their regular contribution of $5, 000, they will accumulate: $5, 000 x 1. 09^7 + $5, 000 x 1. 09^6 + $5, 000 x 1. 09^5 + $5, 000 x1. 09^4 =$32, 276. 7, the total will be: = $59, 696. 76

At the beginning of eight year, the amount left will be $59, 696. 76 –($14, 500x1. 035^7) or ($18, 448. 04)= $41, 248. 71. The amount grows by 9% within one year to $44, 961. 69

At t= 9, the amount left will be $44, 961. 69 – ($14, 500x1. 035^8) or ($19, 093)= $25, 867. 96. The amount grows by 9% within one year to $28, 196. 08

At t= 10, the amount left will be $28, 196. 08 – ($14, 500x1. 035^8) or ($19,

093) = $7, 434. 07. The amount grows by 9% within one year to $8, 103. 14 At t= 11, the amount of $8, 103. 14, will have a deficit of $12, 350. 54, so an additional amount of $9, 536. 88 should be saved before the study begins, hence distributing the amount in three equal installments we use the annuity formula, Ax (1. 09^3), A = $2, 292. 12

Work cited

Wegner, Trevor. Applied Business Statistics: Methods and Excel- Based Applications, Cape Town: Juta and Company Ltd, 2010.