Refinancing Option
In-Class Case Study Lab

Background:

An engineer bought a house shortly after being hired on at MERC. She took out a 15 year $100,000 loan with a 6.125% APR, compounded monthly. As of now, she has already made 12 payments.

Question 1: What is the current P&I payment (what is A on this 15 year $100,000 loan)?

A_A =

Question 2: What is the present value and future value of the remaining payments of this loan?

P_A =

F_A =

The engineer has a chance to refinance by taking out another 15 year $99,200 loan with a 4.75% APR, compounded monthly. (Note the principle is different because new closing costs ($3,200) have been rolled into the remaining principle of the existing loan ($96,000), so that no out of pocket expenses are incurred).

Question 3: What is the new P&I payment?

A_B =

Question 4: What is the present value and future value of this new loan (this is an easy question)?

P_B =

F_B =

Question 5: What will be the present value and future value of each loan in two years (24 months)? Keep in mind that 12 months had already been paid on the first option.

$P_{A\text{-}2}$ =
$F_{A\text{-}2}$ =

$P_{B\text{-}2}$ =
$F_{B\text{-}2}$ =

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Question 6: The difference between the monthly installments of each option is approximately $79. What is the future worth of these monthly savings two years from now, if the engineer invested this savings in a Money Market paying 4% per year compounded quarterly? (Assume no interperiod compounding.)

F =

Question 7: Clearly, if the engineer were to keep the home for 15 years, re-financing would be the best option since $F_B < F_A$. However, would you advise her to re-finance the loan if she plans on moving in 2 years?