

Your parents receive a letter suggesting they refinance their home mortgage.

This offer suggests refinancing the outstanding mortgage principle at 4.5% API with monthly payments for 15 years. *The refinancing will require a \$2,000.00 fee.*

Since this is a long term investment, you realize that any analysis must account for the TIME VALUE OF MONEY and chose to do a discounted analysis.

Analyze this offer using a Net Present Value Analysis (NPV) to determine if the offer makes sense for your parents.

For ALL calculations, use an API (discount rate) of 9.0% and ignore the effect of any inflation and insurance, or ancillary costs.

Specifically, using the present worth formula for a uniform series:

- determine the NPV of all future payments on the existing mortgage.
- determine the NPV of the proposed refinancing offer.
- add in the \$2,000 fee
- compare the two two NPVs to see which costs less in today's dollars

After completing the **objective** analysis of the offer, determine and analyze **subjective** reasons (including personal, insurance, and tax considerations) for accepting or rejecting the offer.

If your parents can't or won't permit you to use their existing mortgage information, use the virtual mortgage shown below.

Virtual Mortgage: 311 remaining monthly payments (principle & interest only) of \$552.11

defining: $n := 311$ $A := 552.11$ $i := \frac{.09}{12}$

Using the present worth
formula for a uniform series:: $P := A \cdot \frac{(1 + i)^n - 1}{i \cdot (1 + i)^n}$

The present worth of all 311 future monthly payments
of \$552.11 assuming a 9% discount rate is: $P = 66407.70$

Present this analysis in a professional format so it can be understood by a lay-person but supported with technical documentation.

For extra credit, adjust the analysis using formulas (you research) for inflation.