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21 April 2020  
 Dear parents, it is to my understanding that you are considering a $75,000, 30-year mortgage to purchase a new home. The bank that you all have done previous business with is offering you a rate of 7.54% compounded monthly, while a competitor bank is offering a rate of 6.87% compounded monthly. This letter will discuss why I think you should switch banks and how much money you would save in interest if you switch.

The first calculation I completed was used with the monthly payment formula which is PMT=PV[i/1-(1+i) ^-n]. I started by finding the rate per period. I divided 7.54% by 100 and then dividing it by 12 which gave me 0.00628. Then I found the number of periods by multiplying 30 years by 12 which gave me 360. I then plugged in the known values into the equation, PMT=$75,000[0.00628/1-(1+0.00628) ^-360]. I found that the monthly payment for the 7.54% rate is $526.50. I then multiplied $526.50 by the number of periods, 360. This gave me $189,540.00, then I subtracted original cost $75,000 from it. The total amount was $114,540.00.

After I completed that calculation, I then used the same formula to solve for the monthly payment of a rate of 6.87% compounded monthly. I found that the monthly payment is $492.75. As you can see, the monthly payment from the competitor bank is less than the monthly payment from your usual bank. I continued my calculations and once I found the monthly payment I then multiplied it by 360 and then subtracted that amount by $75,000. This gave me $102,390. Then, to find the total interest saved I subtracted $114,548 by $102, 390. If you would switch banks then you would save a total of $12,247.20 interest. If you would then invest it in an account that offered 8% interest compounded continuously for 10 years, you would use the A=Pe^rt formula. Once you plug the values into the formula you would get $27,256.64. That’s how much money your saved interest would be worth.

In conclusion, I highly suggest that you switch banks. You would save $12,247.20 in interest.

 