Math 1030

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Buying a House

Select a house from a real estate booklet, newspaper, or website. Find something reasonable – between $100,000 and $350,000. In reality, a trained financial professional can help you determine what is reasonable for your financial situation. Take a screen shot of the listing for your chosen house and attach it to this project. Assume that you will pay the asking price for your house.

The listed selling price is $329,900.

Assume that you will make a down payment of 20%.

The down payment is . $65,984.40   The amount of the mortgage is $263,915.60.

Ask at least two lending institutions for the interest rate for both a 15-year and a 30-year fixed rate mortgage with no "points" or other variations on the interest rate for the loan.

Name of first lending institution: Wells Fargo .

Rate for 15-year mortgage: 4.375%. Rate for 30-year mortgage 4.875%.

Name of second lending institution: America First.

Rate for 15-year mortgage: 4.25%.   Rate for 30-year mortgage 4.875%.

Assuming that the rates are the only difference between the different lending institutions, find the monthly payment at the better interest rate for each type of mortgage.

15-year monthly payment: $1,985.41 30-year monthly payment $1,396.69.

These payments cover only the interest and the principal on the loan. They do not cover the insurance or taxes.

To organize the information for the amortization of the loan, construct a schedule that keeps track of: (1) the payment number and/or (2) the month and year (3) the amount of the payment, (4) the amount of interest paid, (5) the amount of principal paid, and (6) the remaining balance. There is an MS excel file included on our CANVAS page if you are using a PC or you can also use any online programs that are available such as the one on Brett Whissle's website http://bretwhissel.net/cgi-bin/amortize if you are using a MAC.

It's not necessary to show all of the payments in the tables below. Only fill in the payments in the following schedules. Answer the questions after each table.

30-year mortgage

Payment Number	Payment Date	Payment Amount ($)	Interest Paid ($)	Principal Paid ($)	Remaining Balance ($)
1.	10/2018	$263,920.00	$1,072.18	$324.51	$263,595.49
2.	11/2018	$263,595.49	$1,070.86	$325.83	$263,269.66
60.	9/2023	$242,333.70	$984.48	$412.21	$241,921.50
120.	9/2028	$214,390.43	$870.96	$525.73	$213,864.71

240.	9/2038	$133,298.26	$541.52	$855.17	$132,443.10
300.	9/2043	$75,327.14	$306.02	$1,090.67	$74,236.47
360.	9/2048	$1,391.04	$5.65	$1,391.04	$0.00
total	- - - - - - -	- - - - - - - - - -	$238,887.08	$263,920.00	- - - - - - - - -

Use the proper word or phrase to fill in the blanks.

     The total amount paid is the number of payments times the monthly payemnts.

     The total interest paid is the total amount paid minus The total minus the mortgage.

Use the proper number to fill in the blanks and cross out the improper word

in the parentheses.

     Payment number 1 is the first one in which the principal paid is greater than the interest

     paid.

     The total amount of interest is $238,887.08 (less) than the mortgage.

The total amount of interest is 9% (less) than the mortgage.

The total amount of interest is 91%10/2018   of the mortgage.

15-year mortgage

Payment Number	Payment Date	Payment Amount ($)	Interest Paid ($)	Principal Paid ($)	Remaining Balance ($)
1. .	10/2018	$263,920.00	$934.72	$1,050.69	$262,869.30
2. .	11/2018	$262,869.30	$931.00	$1,054.41	$261,814.89
50. .	11/2022	$207,806.69	$735.98	$1,249.43	$206,557.26
90. .	3/2026	$154,217.85	$546.19	$1,439.22	$152,778.62
120. .	9/2028	$108,748.71	$385.15	$1,600.26	$107,148.45
150. .	3/2031	$58,191.98	$206.10	$1,779.31	$56,412.67
180. .	9/2033	$1,978.41	$7.01	$1,978.40	$0.00

total	- - - - - - -	- - - - - - - - - -	$93,454.37	$263,920.00	- - - - - - - - -

Payment number 1 is the first one in which the principal paid is greater than the interest paid.

The total amount of interest is $170,465.63 (less) than the mortgage.

The total amount of interest is 65% (less) than the mortgage.

The total amount of interest is 35% of the mortgage.

Notice how the 15-year mortgage reduces the amount of interest paid over the life of the loan. Now consider again the 30-year mortgage and suppose you paid an additional $100 a month towards the principal [If you are making extra payments towards the principal, include it in the monthly payment and leave the number of payments box blank.]

The total amount of interest paid with the $100 monthly extra payment would be $3,600.

The total amount of interest paid with the $100 monthly extra payment would be $3,600 (more) than the interest paid for the scheduled payments only.

The total amount of interest paid with the $100 monthly extra payment would be 3% (more) than the interest paid for the scheduled payments only.

The $100 monthly extra payment would pay off the mortgage in 29 years and 9 months; that's 3 months sooner than paying only the scheduled payments.

Summarize what you have done and learned on this project in a well written and typed paragraph of at least 100 words (half page). Because this is a math project, **you must compute and compare numbers,** both absolute and relative values. Statements such as "a lot more" and "a lot less" do not have meaning in a Quantitative Reasoning class. Make the necessary computations and compare

(1) the 15-year mortgage payment to the 30-year mortgage payment

I would do a 15 year mortgage payment, if I make a lot more money and I can afford a 15 year mortgage so I don't pay as much in the long run.

(2) the 15-year mortgage interest to the 30-year mortgage interest

The 15 year mortgage is a lot cheaper than the 30 year mortgage, because there is less time for interest to add up and also the 15 year interest is less than the 30 year interest.

(3) the 15-year mortgage to the 30-year mortgage with an extra payment

The 15 year mortgage to the 30 year mortgage is still better.

Also, keep in mind that the numbers don't explain everything. Comment on other factors that must be considered with the numbers when making a mortgage.

Other factors that come with buying a house is whether or not you have kids, the property value, the house in the future could be either worth more or less and the equity could either be good or bad.