

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 **\$229,900**

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

The down payment is **\$45,980**

The amount of the mortgage is **\$183,920**

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: **America First Credit Union.**

Rate for 15-year mortgage: **3.5%**

Rate for 30-year mortgage: **4.25%**

Name of second lending institution: **USAA: V.A. Loan.**

Rate for 15-year mortgage: **3.625%**

Rate for 30-year mortgage: **4.125%**

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: **\$1,314.81**

30-year monthly payment: **\$904.78**

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 a Loan Amortization schedule in CANVAS.

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.

15-year mortgage

Payment Number	Payment Date	Payment Amount (\$)	Interest Paid (\$)	Principal Paid (\$)	Remaining Balance (\$)
1. .	4/15/17	1314.81	536.43	778.38	183,141.62
2. .	5/15/17	Same	534.16	780.65	182,360.97
50. .	5/15/21	Same	417.03	897.78	142,085.63
90. .	9/15/24	Same	306.11	1008.70	103,943.65
120. .	3/15/27	Same	214.01	1100.80	72,275.20
150. .	9/15/29	Same	113.51	1201.31	37,715.31
180. .	3/15/32	1310.99	3.82	1307.16	\$0.00. .
total	-----	9,199.85	2,125.07	7,074.78	-----

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

The total principal paid is the same as the **amount going towards the actual loan amount, not the interest paid.**

The total amount paid is the number of payments times **compounds per year times by time.**

The total interest paid is the total amount paid minus **Principal Paid.**

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 **\$52,746.15** (less) than the mortgage.

The total amount of interest is **71.3%** (more) than the mortgage.

The total amount of interest is **28.7%** of the mortgage.

30-year mortgage

Payment Number	Payment Date	Payment Amount (\$)	Interest Paid (\$)	Principal Paid (\$)	Remaining Balance (\$)
1.	4/15/17	904.78	651.38	253.39	183,666.61
2.	5/15/17	Same	650.49	254.29	183,412.32
60.	3/15/22	Same	592.61	312.16	167,013.52
120.	3/15/27	Same	518.85	385.93	146,112.00
240.	3/15/37	Same	314.91	589.87	88,324.64
300.	3/15/42	Same	175.52	729.26	48,828.79
360.	3/15/47	901.58	3.19	898.39	\$0.00.
total	-----	6,330.26	2,906.95	3,423.29	-----

Payment number 240 is the first one in which the principal paid is greater than the interest paid.

The total amount of interest is \$141,799.31 (less) than the mortgage.

The total amount of interest is 22.9% (less) than the mortgage.

The total amount of interest is 77.1% of the mortgage.

Suppose you paid an additional \$100 a month towards the principal

The total amount of interest paid with the \$100 monthly extra payment would be \$141,799.31.

The total amount of interest paid with the \$100 monthly extra payment would be \$113,056.16 (less) than the interest paid for the scheduled payments only.

The total amount of interest paid with the \$100 monthly extra payment would be 20.27% (less) than the interest paid for the scheduled payments only.

The \$100 monthly extra payment would pay off the mortgage in 24 years and 7 months; that's 64 months sooner than paying only the scheduled payments.

Summarize what you have done and learned on this project. Because this is a math project, **you must compute and compare numbers**, both absolute and relative values, that haven't been compared above. 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, (2) the 15-year mortgage interest to the 30-year mortgage interest, (3) the 15-year mortgage to the 30-year mortgage with an extra payment, and (4) the 15-year mortgage to the 30-year mortgage with a large enough extra payments to save 15 years and have the loan paid off in 15 years. 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.

Your submission must be in pdf format. Refer to the assignment rubric to see how you'll be graded.

According to the graphs for the 15 & the 30 year mortgage-

- 1) The 15 year mortgage will be a higher payment of \$410.00 amount difference from the 30 year loan. The payments will be higher due to the shorter amount of time on the loan. The amount of interest charged will be smaller also for the 15 year since the time is smaller. The 30 year loan will have a monthly payment of \$904.78. It is smaller only because the time frame is longer, you will have more interest added because of it.
- 2) The amount of interest compared between the two will be only a few hundred dollars different since the percentage of the interest rate is not that different from each other. The 15 year will have an interest total of 2125.07 (per graph) and the 30 year will have an interest total of 2906.95 (per graph). The amount difference would be 781.88 in interest with going with the 30 year.
- 3) The difference between the 30 yr. plus extra \$100 and the 15 yr. The less interest is paid during the 30 yr. and the amount to the principle will increase enough to take off 64 months worth of payment, but it will not compare to the 15 year with its quick time frame loan. The 15 year loan will only have a \$310 amount difference on monthly payments
- 4) In order to make the 30 year loan be complete by its 15th year. You will have to make an extra payment of \$480.00 every month. That will cover the interest charge and add more of the payments to the principle amount, therefor making your loan shorter.