**Subject area/course**: Mathematics/Integrated Math 3

**Grade level/band**: 9-12

**Task source**: New Hampshire Task Bank; Author: Kim Theriault

**Car Loans**

**STUDENT INSTRUCTIONS**

1. **Task context**:

Congratulations! You have been approved for a car loan under the assumption that you have a cosigner. Your goal will be to select which *used* car you wish to purchase and then decide which loan suits your needs most appropriately.

**Step 1: Know how much money you have to spend** (maximum of 15 minutes)

* You have $2,000 you may use as a down payment, or you can keep it in savings and put no money down.
* Decide how much you can afford to budget per month for your car, usually 10-15% of your monthly budget. What monthly income are you assuming? Is this reasonable? How did you arrive at it?

**Monthly Budget: \_\_\_\_\_\_\_\_\_\_\_\_**

**Step 2: Research cars** (maximum of 45 minutes)

* Search for a vehicle in the magazines provided or by using your cell phone and sites such as cars.com. Find a vehicle priced at $15,000 or less.
* Check the Kelley Blue Book value of the vehicle (kbb.com) to make sure that you are paying an appropriate amount for this vehicle.
* Before buying a used vehicle, it’s a good idea to check its Carfax report (carfax.com). You have to pay money to actually see the report but you should visit the site and see if there are records for your car of choice.
* Taxes and insurance on newer vehicles, more expensive vehicles, and four-wheel drive vehicles are generally more. Find approximate costs for the taxes and insurance for your chosen vehicle.

**Vehicle Description:**

|  |  |  |
| --- | --- | --- |
| Year: | Make: | Model: |

Price: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Kelley Blue Book Value: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Step 3: Calculate your monthly payment using each of the following banks.**

You must show how you reached your calculations. You must also include at least one table or loan amortization schedule and one graph. A loan amortization schedule is a table that shows the principal and the amount of interest that is paid off each month. Make sure that you can afford the monthly payment! See the Wikipedia page on amortization for the amortization formula: [http://en.wikipedia.org/wiki/Amortization\_(business)](http://en.wikipedia.org/wiki/Amortization_%28business%29). Use this and your spreadsheet software to develop an amortization schedule. You will work in groups for one loan first and then work on the other two individually.

Lugubrious Loans by Lee: “*We guarantee you’ll be approved!*”

Has approved you for up to $22,000 at a 5.9% annual interest rate compounded monthly for 7 years.

Anderson Financial: “*The right loan for the right person*”

Has approved you for a $16,500 loan at 4.5% annual interest rate compounded semi-annually for 3 years.

First Mutual Trust: “*Where your interest is our first priority*”

Has approved you for a $19, 000 loan at 6.2% annual interest rate compounded continuously for 5 years.

What type of graphs did you create that were helpful and how do these graphs support your decision?

1. **Final product**:

Explain which loan you chose based on total cost (i.e., total interest cost), monthly cost, and your budget restrictions. You may wish to include a reference to any graphs, tables, or charts that you created.

**Additional Information**

1. **Knowledge and skills you will need to demonstrate on this task:**

You will need to demonstrate that you can:

* Set up and solve problems
* Model relationships between quantities
* Communicate mathematical findings
* Manipulate functions
* Create an amortization schedule
* Solve exponential and quadratic models
1. **Materials needed:**

You will need access to the Internet for your research. A graphing calculator or the use of Microsoft Excel on a computer would be useful for the analysis of data.

1. **Time requirements:**

Your teacher may give you up to five days to complete this task.

1. **Scoring:**

Your work will be scored using the Car Loan Task Rubric. You should make sure you are familiar with the language that describes the expectations for proficient performance.