

## Answer on Question #61175 – Math – Financial Math

### Question

Clarissa wants to buy a \$5995 home entertainment system from the Legends Super Store. Her purchasing options are as follows:

#### Option 1

Legends Super Store

Finance Company

- $\frac{1}{2}$  deposit
  - 6 months interest free and no repayments for 6 months
- THEN pay the FULL balance due.

#### Option 2

- \$1250 deposit
- 24 equal monthly repayments of \$265 each month.

#### Option 3

- $\frac{1}{3}$  deposit
- 18 equal monthly repayments of \$390

a) Compare each of the loans in terms of the total monthly repayments, the interest paid and the total amount to be repaid.

### Solution

Let's do the necessary calculations for the first option:

Based on the conditions,  $\frac{1}{2}$  the amount (\$2997.5) is paid as the deposit, respectively, equal to the rest of the amount will be a loan. Because essentially provided an interest-free loan, the amount of interest payable will be equal to 0. It is also specified that during the term of the loan (6 months) no monthly repayments, only then total monthly repayment pay the full balance due.

Let's do the necessary calculations for the second option:

Based on the conditions, the amount \$1250 is paid as the deposit, respectively, to the rest of the amount \$4745 will be a loan. Total monthly repayment will be equal to \$6360 (24 months \* \$265 per month). The difference between the total monthly repayment and loan amount is the amount of total interest paid. So  $\$6360 - \$4745 = \$1615$  is total interest paid.

Let's do the necessary calculations for the third option:

Based on the conditions,  $\frac{1}{3}$  of the amount (\$1998.33) is paid as the deposit, respectively, to the rest of the amount \$3996.67 will be a loan. Total monthly repayment will be equal to \$7020 (

18months\*\$390 per month). The difference between the total monthly repayment and loan amount is the amount of total interest paid. So  $\$7020 - \$3996.67 = \$3023.33$  is total interest paid. The obtained results will be presented in the form of a table.

<b>Table 1. Comparing different loans</b>				
<b>Option</b>	<b>Interest rate (%)</b>	<b>Total monthly repayment (\$)</b>	<b>Total principal (\$)</b>	<b>Total interest paid (\$)</b>
<b>1</b>	0	2997.5	2997.5	-
<b>2</b>	24	6360	4745	1615
<b>3</b>	81	7020	3996.67	3023.33

Note: The interest rate is found using the excel function RATE.

So the most expensive way of loans is option 3 and most favorable is the first option.