

Math 1050 Mortgage Project

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In this project we will examine a home loan or mortgage. Assume that you have found a home for sale and have agreed to a purchase price of **\$201,000**.

Down Payment: You are going to make a 10% down payment on the house. Determine the amount of your down payment and the balance to finance.

Down Payment \$20,100 Mortgage Amount \$180,900

Part I: 30 year Mortgage

Monthly Payment: Calculate the monthly payment for a 30 year loan (rounding up to the nearest cent) by using the following formula. **Show your work.** [PMT is the monthly loan payment, P is the mortgage amount, r is the annual percent rate for the loan *in decimal*, and Y is the number of years to pay off the loan.] For the 30 year loan use an annual interest rate of 4.975%.

$$PMT = \frac{P \left(\frac{r}{12} \right)}{1 - \left(1 + \frac{r}{12} \right)^{-12Y}}$$

Show work here

$$PMT = \frac{180900 \left(\frac{0.04975}{12} \right)}{1 - \left(1 + \frac{0.04975}{12} \right)^{-12(30)}}$$

$$= \frac{180,900(0.004145833)}{1 - (1.004145833)^{-360}}$$

$$= \frac{749.981244}{1 - (1.004145833)^{-360}}$$

$$= \frac{749.981244}{1 - (0.2255046083)}$$

$$= \frac{749.981244}{0.7744953917}$$

$$\approx \$968.35 = \text{monthly payment}$$

Monthly Payment for a 30 year mortgage \$968.35

Note that this monthly payment covers only the interest and the principal on the loan. It **does not cover** any insurance or taxes on the property.

Amortization Schedule: In order to summarize all the information regarding the amortization of a loan, construct a schedule that keeps track of the payment number, the principal paid, the interest, and the unpaid balance. A spreadsheet program is an excellent tool to develop an