Lesson 1.5 • Loans and Investments

Name _____ **Period** _____ **Date** _____

1. Assume that each of the sequences below represents a financial situation. Indicate whether each represents a loan or an investment, and give the principal and the deposit or payment amount.

   a. $a_0 = 1000$

   $a_n = (1 + 0.04)a_{n-1} + 100$ where $n \geq 1$

   b. $a_0 = 130,000$

   $a_n = \left(1 + \dfrac{0.0625}{4}\right)a_{n-1} - 1055$ where $n \geq 1$

   c. $a_0 = 1825$

   $a_n = \left(1 + \dfrac{0.075}{12}\right)a_{n-1} + 120$ where $n \geq 11$

2. For each financial situation represented by a sequence in Exercise 1, give the annual interest rate and the frequency with which interest is compounded.

3. Find the first month's interest on each loan.

   a. $20,000 loan; 6% annual interest rate

   b. $1,650 loan; 4.6% annual interest rate

4. Write a recursive formula for each financial situation.

   a. You take out a home mortgage for $144,500 at 6.2%, compounded monthly, and make monthly payments of $990.

   b. You enroll in an investment plan through your job that deducts $225 from your monthly paycheck and deposits it into an account with an annual interest rate of 3.75%, compounded monthly.