



SECTION 6.2: ANNUITIES, SINKING FUNDS, AND AMORTIZATION

Pr 1. You would like to save up \$70,000 over the next 15 years. You have \$900 that you will use as an initial deposit, and then will make quarterly payments for the next 15 years. The account has an interest rate of 7.5% per year, compounded quarterly. How much should you deposit each quarter in order to reach your goal?

$$N =$$

$$I\% =$$

$$PV =$$

$$PMT =$$

$$FV =$$

$$P/Y =$$

$$C/Y =$$

$$PMT: \text{END}$$

Pr 2. Your parents started saving account, for your college expenses, when you turned three years old. They place \$100 into the account each month. If the account has an annual interest rate of 1.6%, compounded monthly.

$$N =$$

$$I\% =$$

$$PV =$$

$$PMT =$$

$$FV =$$

$$P/Y =$$

$$C/Y =$$

$$PMT: \text{END}$$

(a) How much money will be in the account when you turn 18?

(b) How much did your parents invest in the account?

Pr 3. You have deposited \$125 in you IRA at the end of each month for the past 30 years. Your investment has earned an fixed APR of 8%, compounded monthly, over the entire 30 years. Now, at age 55, you are considering retirement. If you keep the money in the account and it maintains a fixed APR of 8%, compounding monthly, what monthly payment will you receive over the next 30 years?

N =

I% =

PV =

PMT =

FV =

P/Y =

C/Y =

PMT: END

Pr 4. You owe \$4500 on a credit card that charges 14.5% per year, compounded monthly. If you only pay the mininum amount of \$60 per month, how long will it take you to pay off the credit card, if you make no additional purchases on the card?

N =

I% =

PV =

PMT =

FV =

P/Y =

C/Y =

PMT: END

Pr 5. The Kleins have decided to buy a house. They can make a down payment of \$30,000 and monthly payments up to \$800. The lowest rate that they were quoted was 7.2% per year, compounded monthly, for 30 years.

(a) What is the the most expensive house they can afford to buy?

N =

I% =

PV =

PMT =

FV =

P/Y =

C/Y =

PMT: END

(b) Suppose the house that they decide to buy has a price tag of \$139,000. What are the monthly payments that they would pay to amortize (payoff) the loan?

N =

I% =

PV =

PMT =

FV =

P/Y =

C/Y =

PMT: END

Pr 6. The Phredds is buying a some land for a price of \$224,000. They make a 15% down payment and borrow the rest from a bank at an interest rate of 3.52% per year, compounded monthly. The loan will have to be paid off in 15 years.

(a) What is their monthly mortgage payments be?

N =

I% =

PV =

PMT =

FV =

P/Y =

C/Y =

PMT: END

(b) What is the outstanding balance on the loan after seven year?

N =

I% =

PV =

PMT =

FV =

P/Y =

C/Y =

PMT: END

(c) After seven years of making payments, how much equity will they have in the land? Assume the value of the land remains constant.

(d) How much interest did the Phredds pay the bank?

Pr 7. You currently owe \$4,500 to the store for the furniture that you purchased. You made a down payment of \$3,000 and have been making payments of \$350 each month for the last three years. The store is charging you interest of 6.3% APR, compounded monthly, on the loan.

N =

I% =

PV =

PMT =

FV =

P/Y =

C/Y =

PMT: END

(a) What was the purchase price of the furniture?

(b) How many more payments will you have to make until the furniture is paid off?

Pr 8. If you buy a television set for \$2500 and agree to pay for it in eighteen equal monthly payments with an annual interest rate of 18%, compounded monthly, how much are your monthly payments?

N =

I% =

PV =

PMT =

FV =

P/Y =

C/Y =

PMT: END

(a) How much are your monthly payments?

(b) How much of the first payment goes towards interest?

(c) How much of the 10th payment will go towards the balance?