

MA 110 SECTION 3.4 AMORIZATION **HOMEWORK: 1, 21, 23, 27, 29, 31, 37, 39, 51**

1. **Amortization** is paying off a debt in a given amount of time by equal periodic payments that include compound interest.
2. If you borrow \$10,000 to purchase a car at 6% interest compounded monthly, what should you monthly payment be to amortize the loan in 4 years?

A. Use the TVM-Solver to solve.

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =

B. How much interest will you pay?

C. How much will be unpaid after 2 years?

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =

3. A person establishes a sinking fund for retirement by contributing \$7,500 per year at the end of each year for 20 years. For the next 20 years, equal yearly payments are withdrawn, at the end of which time the account will have a zero balance. If money is worth 9% compounded annually, what yearly payment will the person receive for the last 20 years?

A. First compute the value of the retirement fund after 20 years of contributions.

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =

- B. Now, we can calculate how much we can withdraw each year from an account that has a beginning value of \$383,700.90.

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =

4. A family has a \$50,000, 20-year mortgage at 7.2% compounded monthly. Find the monthly payment.

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =

- A. What is the unpaid balance after 5 years?

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =

- B. What is the unpaid balance after 10 years?

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =

- C. What is the unpaid balance after 15 years?

5. A person purchased a house 10 years ago for \$100,000. The house was financed by paying 20% down and signing a 30-year mortgage at 9.6% monthly on the unpaid balance. Equal monthly payments were made to amortize the loan over a 30-year period. The owner now (after the 120th payment) wishes to refinance the house because of a need for additional cash. If the loan company agrees to a new 30-year mortgage of 80% of the new appraised value of the houses, which is \$136,000, how much cash (to the nearest dollar) will the owner receive after repaying the balance of original mortgage.

A. How much of the house price was mortgaged?

B. What are the monthly payments on the mortgaged amount?

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =

C. How much does the person owe on the mortgage after 120 payments?

N =
I% =
PV =
PMT =
FV =
P/Y =
C/Y =

D. What is the amount of the new mortgage when the owner refinances?

E. How much cash will the owner receive?