

Time Value of Money - Six Functions of a Dollar

Appraisal Training: Self-Paced Online Learning Session

Lesson 8: Mortgage Constant

Problem 1

Paul takes out a mortgage loan for \$500,000 at an annual rate of 6% with monthly payments for 30 years. What portion of the original loan amount will he pay each year?

Solution:

The exercise asks for the mortgage constant factor, which we can look up directly in AH 505. To solve, locate the mortgage constant factor in AH 505 for an interest rate of 6% for a 30 year term; then multiply the loan amount by the mortgage constant factor.

The applicable *MC* factor is 0.0719461 which is multiplied by \$500,000 to arrive at the amount paid each year of \$35,973.

We can confirm the answer by calculating the monthly payment, multiplying it by 12, and dividing this product by the original loan amount:

- $PMT = PV \times PR$ (6%, 30 yrs, monthly)
 $PMT = \$500,000 \times 0.005996$ (AH 505, page 32, column 6)
 $PMT = \$2,998.00$

$$\$2,998 \times 12 = \$35,976$$

$$\$35,976 \div \$500,000 = 0.0719520 \text{ (difference due to rounding)}$$

Problem 2

Lucy takes out a mortgage loan for \$500,000 at an annual rate of 6% with monthly payments for 15 years. What portion of the original loan amount will she pay each year?

Solution:

The exercise asks for the mortgage constant factor, which we can look up directly in AH 505. To solve, locate the mortgage constant factor in AH 505 for an interest rate of 6% for a 15 year term; then multiply the loan amount by the mortgage constant factor.

The applicable *MC* factor is 0.1012628 which is multiplied by \$500,000 to arrive at the amount paid each year of \$50,631.

We can confirm the answer by calculating the monthly payment, multiplying it by 12, and dividing this product by the original loan amount:

- $PMT = PV \times PR$ (6%, 15 yrs, monthly)
 $PMT = \$500,000 \times 0.008439$ (AH 505, page 32, column 6)
 $PMT = \$4,219.50$

$$\$4,219.50 \times 12 = \$50,634.00$$

$$\$50,634.00 \div \$500,000 = 0.1012680 \text{ (difference due to rounding)}$$