Loan Payments

MATH 1001 – Quantitative Skills and Reasoning

Personal Finance Unit

pp. 204-221 in textbook

Annuities

Definitions

An **annuity** is a set of regular, equal payments over a set period of time.

Finding Payment Amounts

To find the payment amount, we can use the following formula:

PV = Initial Amount

r = annual interest rate

t = time in years

n = payment frequency

PMT = payment

$$PMT = \frac{PV * \left(\frac{r}{n}\right)}{1 - \left(1 + \frac{r}{n}\right)^{(-n*t)}}$$

Finding Payment Amounts

You decide to finance a $12,000 car at 1.99% compounded monthly for 4 years. What will your monthly payments be? How much interest will you pay over the life of the loan?

PV =

r =

t =

n =

$$PMT = \frac{PV * (\frac{r}{n})}{1 - (1 + \frac{r}{n})^{(-n*t)}}$$

Finding Payment Amounts

You want to buy a $120,500 home. You plan to pay 2% as a down payment and take out a 30-year loan for the remaining balance.

a) How much is the loan amount going to be?

b) What will your monthly payments be if the interest rate is 5%?

c) What is the total amount paid for the loan?

d) What is the total interest paid for the loan?

Finding Payment Amounts

You want to buy a $120,500 home. You plan to pay 2% as a down payment, and take out a 30-year loan for the remaining balance.

a) How much is the loan amount going to be?

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Finding Payment Amounts

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d) What is the total interest paid for the loan?

Finding Payment Amounts

You want to borrow $30,000 to pay for school. The loan must be paid back over each year for 25 years. Your account earns 8% interest.

a) What is your anticipated monthly payment?

b) What is the total amount paid for the loan?

c) What is the total interest paid for the loan?

Finding Payment Amounts

You want to borrow $30,000 to pay for school. The loan must be paid back over each year for 25 years. Your account earns 8% interest.

a) What is your anticipated monthly payment?

Finding Payment Amounts

You want to borrow $30,000 to pay for school. The loan must be paid back over each year for 25 years. Your account earns 8% interest.

b) What is the total amount paid for the loan?

Finding Payment Amounts

You want to borrow $30,000 to pay for school. The loan must be paid back over each year for 25 years. Your account earns 8% interest.

c) What is the total interest paid for the loan?