

Finance Day 3

Amortized Loans

↳ loan paid off in a series of regular equal payments

Student Loans

Auto Loans

Home Loans

A simple interest amortized loan is really an annuity whose FV is the loan amount plus interest. Each payment has an interest portion figured with $I = Prt$.

Formula:
$$P(1+i)^n = \text{pymt} \cdot \frac{(1+i)^n - 1}{i}$$

P = present value (or loan amount)

i = periodic interest rate

n = # of payments

pymt = payment

Purchase Price = \$187,600

20% down = $\frac{37,520}{187,600}$

Borrows \$150,080

$r = 6\frac{3}{8}\% = 6.375\%$

$t = 30$ years

$n = 360$ payments

$i = \frac{.06375}{12}$

pymt = ?

$$P(1+i)^n = \text{pymt} \cdot \frac{(1+i)^n - 1}{i}$$

$$150080 \left(1 + \frac{.06375}{12}\right)^{360} = \boxed{\text{pymt}} \cdot \frac{\left(1 + \frac{.06375}{12}\right)^{360} - 1}{\frac{.06375}{12}}$$

14

$$FV = P(1+i)^n$$

$$FV = 5500(1+.066)^4 =$$

$$5500(1+.066)^3 =$$

2

1
