Federal Truth in Lending required lenders to report the cost of financing as APR.

We will call the term FTL APR represent the calculation.

FTL assumes the lender earns a return from 2 sources:
1. The note rate
2. Other finance charges

The "note rate" yields the interest payment that is collected each month, while the other fees are typically collected up front.

Example: If you take out a $100,000 loan with $3,000 in additional finance charges, it's like getting a $97,000 loan, but you are required to repay $100,000. (i.e., the payments and balance is computed on the $100,000 note amount. If you immediately repay the loan, ...
you would be required to repay 100,000

this case we will call 100,000
the Note amount and 77,000
the "net loan proceeds"

**FTL APR calculation is a step procedure**

1. Compute the payment on 100,000 note.

2. Solve for the IYR (i.e. IRR of the loan) for the net proceeds that you actually received.

Say you are note rate of 7.5% for 30 yr on a 100,000 loan with 3,800 in other financing costs, F/YR 2

\[ \text{PMT}(PV=100,000, IYR=.075, N=360) = 672.21 \]

**2. Solve for IYR, with the payment just calculated and a PV of 77,000**

\[ \text{IYR} \left( PV = -77,000, \text{PMT} = 672.21, N = 360 \right) = 7.814\% \] (This is the yield to lender if you keep the mortgage full term)
FTL chooses the APR to be rounded to the nearest 
1/8% for fixed rate mortgages and 
nearest 1/4% for adjustable rate mortgages.

\[
7.875 \leq \text{nearest } 1/8\%
\]

\[
7.814\% < 7.750\%
\]

\[
(\text{Note } 0.016 = 0.0025 - \text{The mid-table}
\]

\[
7.75 + 0.0025 = 7.75 + 0.0025
\]

\[
= 7.7525
\]

Thus, 7.814 is closest to 7.875\%.
So requested FTL APR is 7.875\%.

We could also compute the 

\[
\text{EY} \text{ by } \text{EFF\%} = 8.10\%
\]

which is effective yield to lender
if you keep the loan for the entire 
term.

If you payoff the loan early the 
yield to lender will be higher.
So we have identified 3 rates. For the above example

Note Rate < FTLAPR < EAR

The Note rate = FTLAPR if there are zero other finance charges (i.e. no points, origination fees, underwriting fees, etc.)

Note: If you don’t keep your loan for the entire term, and you paid off the finance charges it’s best to get a loan with the FTLAPR.

Page 113 #1

Fully Amortizing ARM (Constant Payment Mortgage) for $25,000 at 1% for 20 years. What is the monthly payment?

PMT(PV, 25.80, I%R, N-210)
If this would have been a 20-year mortgage, what would the first 6 payments be?

Monthly Amortization = \( \frac{125,000}{240} = 520.83 \)

Interest on this amount 5

\[ 520.83 \times 0.015 = 7.83 \]

which is the rate at which the payments will decrease each month

First Month's Interest

\[ 25,000 \times \frac{0.015}{2} = 150 \]

So first month payment 520.83

\[ 45.83 \]

\[ \frac{1666.66}{1666.66} 4271666 \]

Second Month 1666.66 4.77 1666.89

de c
r 113 #2

80,000 @ 9% for 25 yr

\[ p = 80,000 \times 1.127, N = 300 \]
\[ 0.716, 3.6 \]

b) Month 1 int 600
Month 1 P i n 7 36

c) Total pr n = total int over 25 yr
Total prn 80,000
Total Int \(6.736 \times 300\) 20,000
20,140.8 80,000
2 408 to enter st
or INPUT 2000 Ampot etc
d) BAL \(W P T \) 20 Ampot
BAL 66 190.72

e) Total Int a year through year 10
some approach as for d)
Prin \ 3 \ 304.28
Int 66 753.92

f) Prn & int for month 50
50 \(1 \) PUT 50 Ampot
Int 56845 Pr n = 0291
1343  mortgage 8% for 30 yr

a) Monthly Part

P/yr = 2

\[ PMT(\text{PV} - 100,000, I/yr 8, N 360) \]

\[ 733 \]

b) Quarterly Part

P/yr = 4

\[ PMT(\text{PV} - 100,000, I/yr 2, N 360) \]

\[ 2204.8 \]

c) Annual Part

P/yr

\[ PMT(\text{PV} 100,000, I/yr 8, N 360) \]

\[ 8882 \]

d) Daily Part

P/yr = 52

\[ PMT(\text{PV} 100,000, I/yr 8, N 360) \]

\[ 169.23 \]

#4 - How much do you pay to prin & interest over the life of each loan?

- PRIN = 100,000 for all options
- a) INT = 733.76 * 360 - 100,000 = 16,535.60
- b) INT = 2204.81 * 120 - 100,000 = 164,577.20