Excel Week 8 Lab – Amortization Table in Excel

In this week’s lab activity, the goal is to create a schedule in Excel that breaks down every payment made on a 30-year mortgage into which portion goes to interest and which portion goes to principal. In a compound interest situation, interest begins to accrue at the end of the first month (at the time of the first mortgage payment). For this reason, a portion of each month’s payment covers that interest.

What follows is a description from <https://www.wallstreetprep.com/knowledge/loan-amortization-schedule/>

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What many people do not realize is that most of each month’s payment goes to interest at first. Gradually the portion that goes to interest goes down and the portion that goes to principal goes up. However, it is a mistake people make thinking that their payments are helping them build equity in their home more than they really are.

The task this week is to create a schedule based on a 30-year fixed rate mortgage. (Note that this process would work for any fully amortizing loan). And the payment frequency is also the compounding periods per year.

**Mortgage amount: your choice of $400,000 or $350,000 🡨 type this into cell D4**

**Interest rate: your choice of either 5.0% or 5.5% 🡨 type this into cell D6**

**Borrowing term: 30 years 🡨 type this into cell D5**

**Payment frequency: 12 🡨 type this into cell H5**

Also, please use the Excel template provided, which can be accessed through Office365, now Microsoft365. If desired it can be downloaded and you can work on it in Excel desktop application.

You will be introduced to two new functions in Excel:

“Interest Payment”: “Principal Payment”:

 and 

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Calculate the following:

1) In cell H4, calculate the monthly interest rate using cell references: **=D6/H5**

2) In cell H6, calculate the number of payments/periods: **=D5\*H5**

Now calculate the 1st month information across row 9. The loan amount in **D4** is the “present value” and the month in Cells **B9 through B368** is the current period or “**per**” argument.

Payment in cell **C9** =PMT($H$4,$H$6,$D$4)

Interest in cell **D9** =IPMT($H$4,**B9**,$H$6,$D$4)

Principal in cell **E9** =PPMT($H$4,**B9**,$H$6,$D$4)

Balance in cell F9 =D4+E9 🡨 this changes in row 10 (do not fill this down)!

% Interest in cell **G9** =**D9/C9**

% Interest in cell **H9** =**E9/C9**

After the first month, the new balance will be calculated from the previous balance:

Balance in month #2 (in row 10, cell **F10**) type =**F9+E10**

***We want to keep the formatting*** of the cells so before we do a “Fill/Down” we should enter formulas by hand into rows 10 and 11

Month #2 formulas should look like this:

Payment in cell **C10** =PMT($H$4,$H$6,$D$4)

Interest in cell **D10** =IPMT($H$4,**B10**,$H$6,$D$4)

Principal in cell **E10** =PPMT($H$4,**B10**,$H$6,$D$4)

Balance in cell **F10** =**F9+E10**

% Interest in cell **G10** =**D10/C10**

% Interest in cell **H10** =**E10/C10**

Month #3 formulas should look like this:

Payment in cell **C11** =PMT($H$4,$H$6,$D$4)

Interest in cell **D11** =IPMT($H$4,**B11**,$H$6,$D$4)

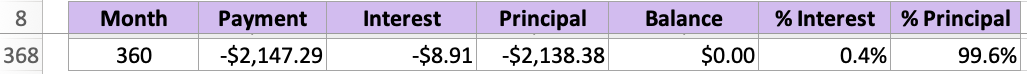
Principal in cell **E11** =PPMT($H$4,**B11**,$H$6,$D$4)

Balance in cell **F11** =**F10+E11**

% Interest in cell **G11** =**D11/C11**

% Interest in cell **H11** =**E11/C11**

Now SELECT cells C10 through H11 (you should have Months 2 and 3 selected) and FILL/DOWN all the way to ROW 368. If everything was done correctly, ROW 368 should ***resemble this***:



(These numbers are for a mortgage amount of $400,000 and interest rate 5% )

Finally, use the =SUM( ) function in Excel to total up the Payments, Interest, and Principal.

Your spreadsheet should look like this after calculating the SUM of each column:

A screenshot of a table

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As part of this Lab Activity you will be asked some questions. Be prepared to answer them based on the schedule you have just created.