4. INTERMEDIATE EXCEL

Winter 2017

Problem 4.1

- Import and format:
  - zeus.cs.pacificu.edu/chadd/cs130w17/Problem41.html

	A	B	C	D	E
1	Item #	Product	Price	After Discount A	After Discount B
2	125A	Scooter	$55.99	$50.39	$44.79
3	789A	Tricycle	$129.95	$116.96	$103.96
4	78B	Soccer Ball	$12.99	$11.69	$10.39
5	489B	Baby Doll	$12.99	$11.69	$10.39
6	57B	Art Kit	$14.95	$13.46	$11.96
7					
8	Discounts				
9	A	B			
10	10%	20%			

- For the above worksheet, write a formula in the highlighted cell in such a way that you can fill down and then across to calculate the other prices.

Debug Your Worksheet

- Go to the Formulas tab
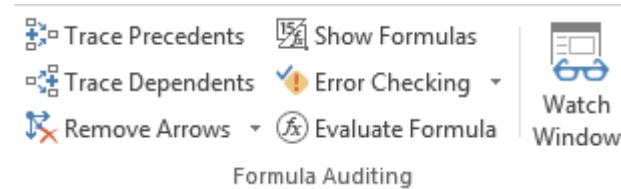
- Select cell D2 and use "Trace Precedents" to see which cells are used by cell D2.

- Select cell B10 and use "Trace Dependents" to see which cells use B10.

- Click "Remove Arrows" to remove the tracing lines at any given time.

Variety of Functions

- Excel has over 350 built-in functions divided into related categories.
- To invoke the "Paste Function" dialog box, click on the f_x icon on the tool bar.
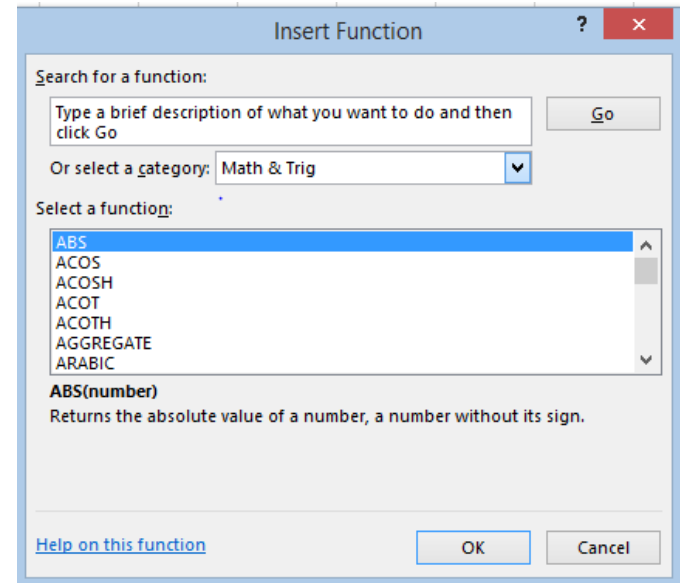
Financial Built-in Functions

- The financial functions can be isolated in Excel. Simply go to the Function Library on the Formulas tab and select Financial.

- PMT Function

PMT Function

- The PMT function calculates the payment for a loan based on constant payments and a constant interest rate

- Syntax is PMT(rate,nper,pv,fv,type) where
  - rate   is the interest rate for the loan
  - nper   is the total number of payments for the loan
  - pv   is the present value (principal)
  - fv   is the future value (usually zero)
  - type   indicates when payments are due
    - 0 = end of month = default
    - 1 = beginning of month

PMT Function Continued

- Remarks
  - The payment returned by PMT includes principal and interest
  - Taxes & fees are not included

  - Units must be consistent between rate and nper
    - **Monthly** payments means
      rate = annual interest rate **/ 12**

PMT Function Continued

- Examples
  - The following formula returns the monthly payment on a $10,000 loan at an annual rate of 8 percent that you must pay off in 10 months:
    - ➤ =PMT(8%/12, 10, 10000) equals -$1,037.03

  - For the same loan, if payments are due at the beginning of the period, the payment is:
    - ➤ =PMT(8%/12, 10, 10000, 0, 1) equals -$1,030.16

Why?

PMT Function Continued

- What do these mean?
  - =PMT(12%/12, 5, -5000)   = $1,030.20

  - =PMT(6%/12, 18*12, 0, 50000) = -$129.08

Problem 4.2

- Now, let's imagine that you want to purchase a car worth $29,899. The car dealer is ready to grant you a 5-year loan at 6.5% annual interest rate, but you must put down 10% of the car price as down payment.

- Design an Excel spreadsheet to allow the user the ability to input:
  - (a)The price of the car, (b)The yearly interest rate, (c)The length of the loan in years

- Your spreadsheet should then compute and display:
  - (d)The amount of the down payment, (e) The amount of the loan , (f) The monthly payment of the loan

- Be sure to Define a Name for each of the input cells appropriately.

Problem 4.2 Continued

- Once you get the above worksheet working, add a row that shows the total interest paid.

	A	B	C
1	Car Loan		
2			
3	Enter Car Price		
4	Enter Yearly Interest Rate		
5	Enter Time in Years		
6			
7	Down Payment Is		
8	Loan Amount Is		
9	Monthly Payment Is		

Problem 4.2 Continued

- Add a payment schedule to your current worksheet with columns: Payment #, Starting Balance, Monthly Payment, Monthly Interest, and Ending Balance.

Payment #	Starting Balance	Monthly Payment	Interest	Ending Balance
1	$26,909.10	$526.51	$145.76	$26,528.35
2	$26,528.35	$526.51	$143.70	$26,145.54
3	$26,145.54	$526.51	$141.62	$25,760.65
4	$25,760.65	$526.51	$139.54	$25,373.68
..	….	….	….	…..

Problem 4.2 Continued

- How can you be sure that your payment schedule is correct?

- Change the interest rate to 6%. Does your worksheet update correctly?

Goal Seek Question

How much car can I afford if I am willing to pay $600 a month under the initial scenario?
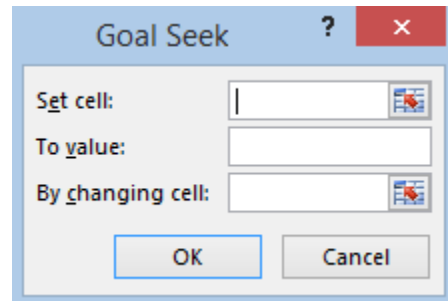
Problem 4.3

- Go back to the worldometers.info page

- Check New book titles

- How many total books have been published this year?

- How many books have been published per day this year?

- Build a table showing the total number of books that will be published for each day of this year (given the growth rate above)

Example

	A	B	C	D
1		**Number of books published per day**		
2		6,519		
3				
4	**Day of Year**	**Date**	**Total Book Sold to this date**	
5	1	1/1/2016	6,519	
6	2	1/2/2016	13,038	
7	3	1/3/2016	19,557	
8	4	1/4/2016	26,077	
9	5	1/5/2016	32,596	
10	6	1/6/2016	39,115	

These numbers are made up and don't reflect the current values from Worldometers!

Freeze Panes

- Freezing panes is a useful technique for keeping an area of a worksheet visible while you scroll to another area of the worksheet.

- Excel displays think black lines to indicate frozen rows and/or columns.

- Select **View->Freeze Panes->Freeze Panes**

- Excel will freeze the panes at the location of the highlighted cell.

- To unfreeze panes, select: **View->Freeze Panes-> Unfreeze Panes**
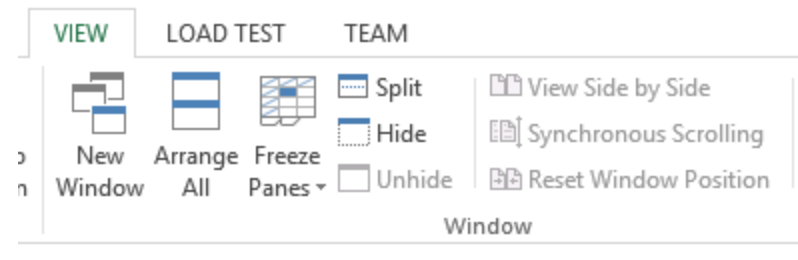
Splitting the Workbook Window

- You can split the workbook window into two or four resizable panes, all with independent scroll bars

- Go to View->Split

Outside Practice

- You want to buy a car for $10,000. You have $2,000 for a down payment and can get a 5 year loan with a yearly interest rate of 5.6%

- Build a spreadsheet that will allow you to input the cost of the car, down payment, and interest rate.

- The spreadsheet should determine the monthly payment and the total amount of money paid for the car over the 5 years (including interest).

- Use Goal Seek to determine what your down payment needs to be for your monthly payment to be $150

Outside Practice

- You want to start funding your retirement account and hope to have saved $1,500,000 in 40 years.

- If you can achieve a 7% yearly interest rate with your retirement account, what does your monthly payment need to be to reach your goal?

- What yearly interest rate would you need to reach your goal if you could only save $450 a month? Show your answer to two digits past the decimal point.