4. INTERMEDIATE EXCEL

Fall 2017
## P4.1

- Import and format:
  - zeus.cs.pacificu.edu/ryand/cs130/fall17/Problem41.html

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Item #</td>
<td>Product</td>
<td>Price</td>
<td>After Discount A</td>
</tr>
<tr>
<td>2</td>
<td>125A</td>
<td>Scooter</td>
<td>$55.99</td>
<td>$50.39</td>
</tr>
<tr>
<td>3</td>
<td>789A</td>
<td>Tricycle</td>
<td>$129.95</td>
<td>$116.96</td>
</tr>
<tr>
<td>4</td>
<td>78B</td>
<td>Soccer Ball</td>
<td>$12.99</td>
<td>$11.69</td>
</tr>
<tr>
<td>5</td>
<td>489B</td>
<td>Baby Doll</td>
<td>$12.99</td>
<td>$11.69</td>
</tr>
<tr>
<td>6</td>
<td>57B</td>
<td>Art Kit</td>
<td>$14.95</td>
<td>$13.46</td>
</tr>
</tbody>
</table>

- 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 in terms of you the “borrower” or “lender”?  
  - =PMT(12%/12, 5, -5000) = $1,030.20  
  - =PMT(6%/12, 18*12, 0, 50000) = -$129.08
P4.2

• Now, let’s imagine that you want to purchase a car worth $29,899. The car dealer is ready to give 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.

• See the next slide for the worksheet format
P4.2 Continued

- Once you get the above worksheet working, add a row that shows the total interest paid.
P4.2 Continued

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

<table>
<thead>
<tr>
<th>Payment #</th>
<th>Starting Balance</th>
<th>Monthly Payment</th>
<th>Interest</th>
<th>Ending Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$26,909.10</td>
<td>$526.51</td>
<td>$145.76</td>
<td>$26,528.35</td>
</tr>
<tr>
<td>2</td>
<td>$26,528.35</td>
<td>$526.51</td>
<td>$143.70</td>
<td>$26,145.54</td>
</tr>
<tr>
<td>3</td>
<td>$26,145.54</td>
<td>$526.51</td>
<td>$141.62</td>
<td>$25,760.65</td>
</tr>
<tr>
<td>4</td>
<td>$25,760.65</td>
<td>$526.51</td>
<td>$139.54</td>
<td>$25,373.68</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

P4.2 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?
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 thick 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 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.