Spreadsheets 3

Lecture Set 14

Incorporating Functions

- Spreadsheets provide many numeric functions
  - Mathematical functions
    - Log()
  - Average, min, max, sum
    - Apply to a collection of cells
    - Can enumerate as comma-delimited list of cells
    - Can specify a range as start:end

Review

- Cell can hold data (text/number)
- Each cell can be "formatted"
  - Format/Cell in menu
  - Default is based on what you enter the first time
  - Use $, % to set format
  - Calculated cells generally floating point
- Ctrl~ to toggle display of formulas/output
  - Make sure you're not in "input mode"
    - Hit <Enter> to make sure

Amortized Loans: Solving for *t*

- Let's rewrite the equation to solve for t

  $P = R((1-(1+(r/n))^{-nt})/(r/n))$

  $P/R * (r/n) = 1-(1+(r/n))^{-nt}$

  $-1*(P/R * (r/n) -1) = (1+(r/n))^{-nt}$

  $\log(-1*(P/R * (r/n) -1)) = -nt*\log(1+(r/n))$

  $\log(-1*(P/R * (r/n) -1))/(-n*\log(1+(r/n))) = t$
- Again, it helps to compute this in pieces
  - Be careful to
    - Negate values
    - Apply log() to the right values
- We can solve for *any* variable
  - But each will require a different process

Example Formula Layout

	A	B	C	D	E
1					
2					
3	**Inputs**			=B6/B7	r/n
4	Principal			=B4/B7	P/R
5	Payment			=-(D4*D3-1)	-1*P/R*r/n-1
6	Interest Rate			=log(D5)	Log(num)
7	Payments each Year			=log(1+D3)	Log(1+r/n)
8				=-B7*D7	-n*
9	**Outcome**				
10	Length of Loan	=D6/D8			
11	Total Paid	=B10*B7*B5			
12	Total Interest	=B11-B4			