



Mac Users Group

Numbers: a Powerful Spreadsheet?

October 4, 2018
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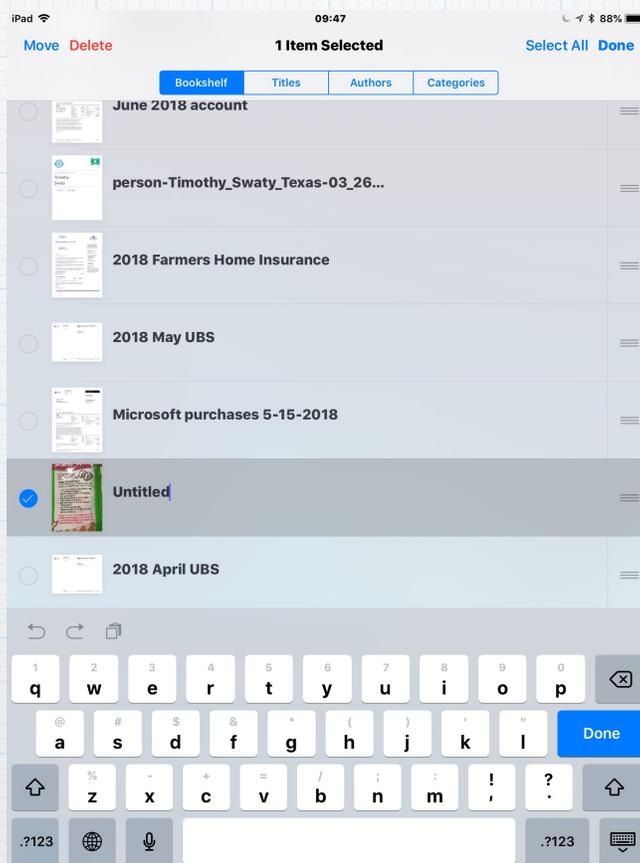


Questions from Last Meeting

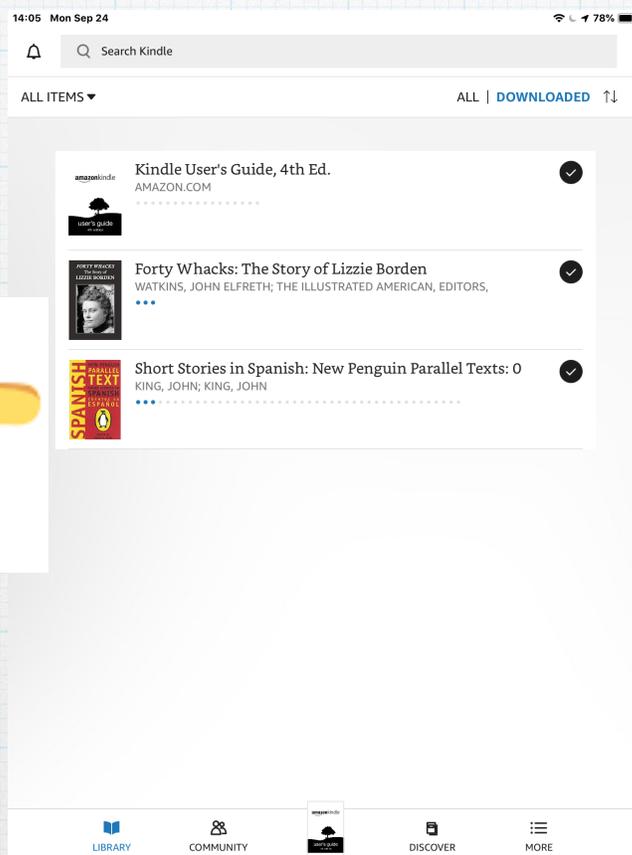
- * Deleting books from iBooks
- * Deleting books from the Kindle app on iPad



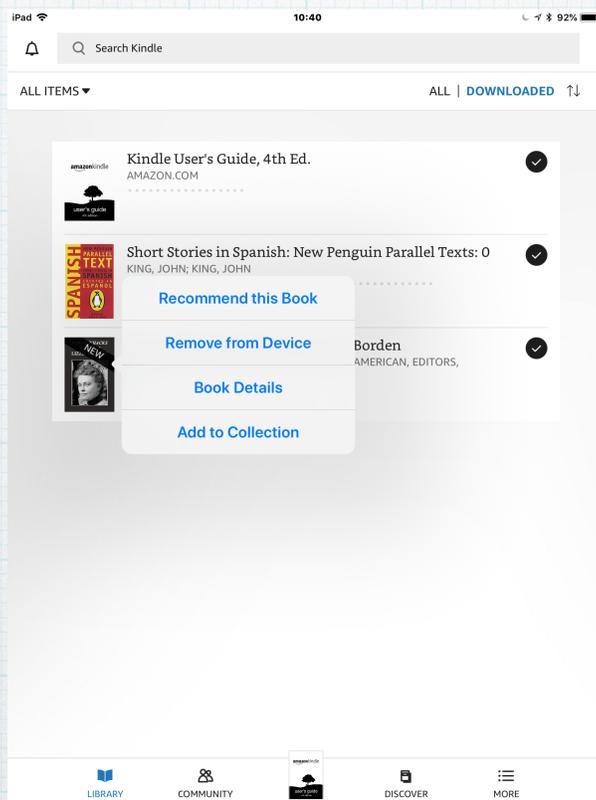
Remove book from iBooks



Press the book to delete



Remove book from Kindle App



Overview

- * What is a spreadsheet?
- * Examples of use
- * Program Decision Making
- * A Budget with Investment Income Example

What is a Spreadsheet?

- * Cellular arithmetic
- * Solve Complex Math Problems
- * One of the driving forces for PC's
- * Can be self documenting



Cellular Arithmetic

- * The rows are numbered and the columns are alphabetical

- * The cells are referred to by the row and column name: B2/B3 is in B4

- * 200/10 is 20 miles per gallon

	A	B	C
1		10/1	
2	Miles	200	
3	Gallons	10	
4	MPG	20	

Data Base vs Spreadsheet

- * A place for organized storage of information
(Can have millions of records)
- * Simple report generation with some calculations
- * **Spreadsheet does both**
- * **Provides calculations**
- * **Limited storage sizes**



Some Typical uses of a Spreadsheet

- * Address Book
- * Library Data Base
- * Recipe Data Base
- * DVD Data Base
- * Music Data Base
- * Art



Advanced Uses of Spreadsheets

- * Automate calculations
- * Track and evaluate investments
- * Income and Expense Balancing (Budgeting)
- * Convert data into information



What is the Problem with Data?

- * Data exists everywhere
- * Need a tool to organize it and present it in an understandable form
- * VisiCalc was the first Apple tool to do this



Automated Calculations

Items for Mileage	9/22/2013
Date	9/22/2013
Days between Fillups	
Beginning total	0
Mileage at Fill-up	254
Gallons	10.99
Total miles	254.00
Cost	\$34.06
MPG	23.11
Cents per Mile	\$ 13.41
Liters per 100 km	10.11

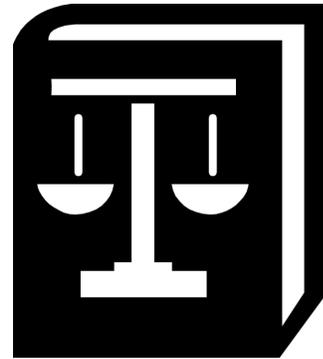
B6-B4

B10/B8

1:'9/22/2013' MPG×3.785÷1.62×100

Why Use a Budget?

- Picture of financial footing
- Provides answers to Questions like:
 - Afford to visit grandkids in May?
 - Make contribution to a college fund?
 - Buy new car?
 - Go on a Cruise?



Money Balance

Money In Minus Expenses = Fun Money



Money In

- **Salary**
- **Pension and or Social Security**
- **Investments**
 - **Money Funds**
 - **Mutual Funds > Dividends**
 - **Stocks > Dividends**
 - **Bonds > Interest**
 - **CD 's > Interest**
 - **Annuity**



Expenses

- **Fixed (Same Each Month)**
 - **Home Owner's Association**
 - **Medicare Insurance Premium**
 - **Medicare Supplement**
 - **Medicare Part D Supplement**
 - **Long Term Care Insurance**
- **Food**
- **Gasoline**



Expenses Continued

- **Variable each Month**
 - **Date Night**
 - **Grand Kid Gifts**
 - **Trips**
 - **Fun Stuff**
- **Investment Opportunities**



Income Details

- **Fixed Same Every month**
 - Pension
 - Social Security
- **Variable each Month**
 - **Stocks**
 - Different dividend rates
 - Different Payment Dates
 - **Bonds**
 - Different Interest Rates
 - Payment at different times during the year



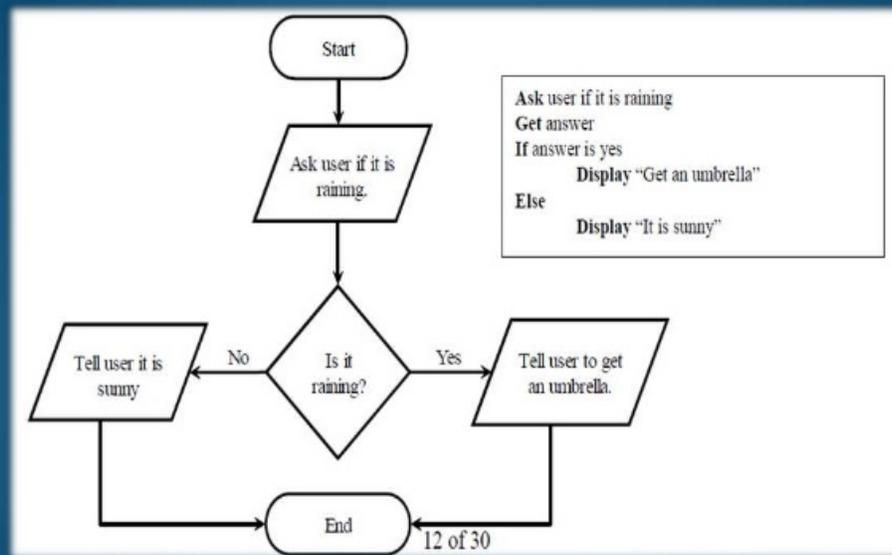
Standard Budget

CATAGORY	January	February
INCOME		
Pension 1	\$135.00	\$135.00
Pension 2	\$713.00	\$713.00
Pension 3	\$142.00	\$142.00
IRA Distribution	\$1,000.00	\$1,000.00
Social Security 1	\$2,025.00	\$2,025.00
Social Security 2	\$133.00	\$133.00
Pension 4	\$185.00	\$185.00
Asset Sales		
Net TOTAL INCOME	\$4,333.00	\$4,333.00
COSTS		
FOOD	\$1,400.00	\$1,400.00
PHONE	\$60.00	\$60.00
ELECTRICITY	\$100.00	\$100.00

ETC.

Program Decision Making Tools

Example 2 (Decision Making)



The IF Function

IF(Price @ Store X Product A @D<5,"Cheap","Correct")
True False

Table 1

Product @ Store X	Price @ Store X	Pricing @ Store X
Product A @A	\$8.00	Correct
Product A @B	\$3.00	Cheap
Product A @C	\$9.00	Correct
Product A @D	\$2.00	Cheap

Product @ Store X	Price @ Store X	Pricing @ Store X
Product A @A		
Product A @B	\$3.00	Cheap
Product A @C	\$9.00	Correct
Product A @D	\$2.00	Cheap

IF Example

IF(B4="Y",C4×0.85,C4)

Table 2

Source	Taxable	Income	Net
Wages	Y	\$1,000.00	\$850.00
IRA Him	Y	\$2,500.00	\$2,125.00
IRA Her	Y	\$1,000.00	\$850.00
Roth Him	N	\$500.00	\$500.00
Roth Her	N	\$500.00	\$500.00
Joint	N	\$500.00	\$500.00
		Total	\$5,325.00

Nested IF Statements

Tests or Conditions

IF X > 5



TRUE



X+25

IF X < 10



Table 3

Number	Result	
4	Too Low	
6		31
7		32
11	out of range	
20	out of range	

IF(A2>5, IF(A2<10,A2+25,"out of Range"), "Too low")

2nd test false 1st test false

If the 1st statement is true, a second test is applied
Like an "and" which requires two conditions to be true

No SUMIF Function

IF(TAX="Y",0.85×Amount,Amount)

Table 4

Income Source	Amount	TAX	NET
Wages	\$1,000.00	N	\$1,000.00
IRA His	\$2,500.00	Y	\$2,125.00
IRA Her's	\$1,000.00	Y	\$850.00
Roth His	\$500.00	N	\$500.00
Roth Her	\$500.00	N	\$500.00
Joint Account	\$500.00	N	\$500.00
Tax Free Bonds	\$875.00	N	\$875.00
Total			\$6,350.00

This gives you the total cashflow, but what about the total Tax free income or the proportion of tax free cash in your Monthly cash stream

SUMIF

What is the %
Tax Free
Income?

Table 5

Income Source	Amount	TAX
Wages	\$1,000.00	Y
IRA His	\$2,500.00	Y
IRA Her's	\$1,000.00	Y
Roth His	\$500.00	N
Roth Her	\$500.00	N
Joint Account	\$500.00	N
Tax Free Bonds	\$875.00	N
Tax Free Income	\$2,375.00	
Tax Free %	34.55%	

SUMIF(C2:C10,"=N",B2:B10)

B11÷SUM(B3:B9)



gg62471099 www.gograph.com

LOOKUP FUNCTION

DATA

DESCRIPTION	SYMBOL	Payment 1	Payment 2	Payment 3	Payment 4	Quarterly Dividend	Yearly Income
						\$/Share	\$
ALPHABET INC CL A	GOOGL	0				0	
AMERICAN TOWER CORP REIT	AMT	1	4	7	10	0.75	\$3.00
AMERIPRISE FINANCIAL INC	AMP	1	4	7	10	0.9	\$3.60
AMERISOURCEBE RGEN CORP	ABC	3	6	9	12	0.38	\$1.52
ANADARKO PETROLEUM CORP	APC	3	6	9	12	0.25	\$1.00
APACHE CORP	APA	3	6	9	12	0.25	\$1.00
AT&T INC	T	2	5	8	11	0.5	\$2.00
BARRICK GOLD CORP CAD	ABX	2	5	8	11	0.03	\$0.12

Query

Stock	DIVIDEND \$/YR	Month for 4th QTR
GOOGL	\$0.00	0
APA	\$1.00	12
APC	\$1.00	12
T	\$2.00	11

LOOKUP(search-for, search-where, result-values)

LOOKUP(Stock,SYMBOL,Yearly Income)

LOOKUP(Stock,SYMBOL,Payment 4)



Total Stock Return

* Composed of two parts:

* Dividend

* Growth

$$\text{Total Stock Return} = \frac{(P_1 - P_0) + D}{P_0}$$

P_0 = Initial Stock Price

P_1 = Ending Stock Price (Period 1)

D = Dividends

Conditional Highlighting

	Symbol	Dividend	Annual	10/10/17	Total Return
COLGATE PALMOLIVE CO	CL	0.42	\$1.68	\$71.26	-6.54%
COMCAST CORP NEW CL A	CMCSA	0.19	\$0.76	\$41.11	-12.50%
DANAHER CORP	DHR	0.16	\$0.64	\$79.82	36.21%
DEERE AND CO	DE	0.6	\$2.40	\$126.70	26.84%

Historical Stock Price

STOCKH(B4, close, \$E\$1)

Current Stock Price

STOCK(B4, Price)

IF F4>0.1 Highlight in GREEN

DISCLAIMER

This spreadsheet is designed to be a Vehicle for instruction in the Advanced Numbers spreadsheet course. The author believes that the calculations are correct and can be used as a supplement for budgeting with investment income. The user should not rely on this spreadsheet for financial advice. The user is responsible for the spreadsheet accuracy once he or she has input their information.