

Budgets, Spreadsheets, and Functions

by – Beth Loughry

Activity overview

Purchasing agents are required to stay within a budget, while purchasing a sufficient number of items for resale. Computer spreadsheets with imbedded functions allow exploration of the number and types of items that can be purchased within the budget. In the activity, you will be required to choose and purchase items while keeping the total purchase price within strict boundaries.

Essential Questions

1. *What tools are included in the Lists and Spreadsheets application that will help the student be more efficient, effective, and productive in examining numerical data?*
2. *How are functions used in a spreadsheet?*
3. *What difficulties could be encountered in learning how to use a spreadsheet, and how can these problems be overcome?*

Objectives

1. *Use correct terminology to identify the features of Lists and Spreadsheets.*
2. *Create a spreadsheet and use that spreadsheet to manipulate data.*
3. *Identify functions, choose applicable functions, and correctly enter those functions into the spreadsheet to analyze data.*
4. *"Purchase" a combination of items for a total as close as possible to a given dollar amount.*
5. *Use functions to determine the total cost of each item purchase, as well as the total cost of all items purchased.*

Concepts

- *Functions in Lists and Spreadsheets*
 - *Budgets*
 - *Place Value*
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Teacher preparation

Mathematical concepts in this activity should already be in place, so insuring a basic understanding of the handheld is sufficient.

Classroom management tips

Each student should have access to a TIN-spire handheld unit, and a price list for items to be purchased.

TI-Nspire Applications

Lists and Spreadsheets

Step-by-step directions

Choose the number of items to purchase for the table below:

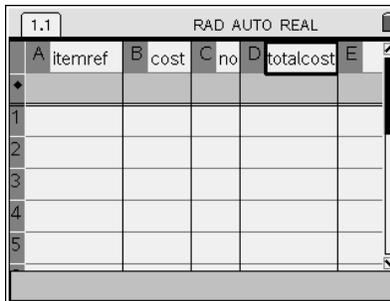
- A. *Choose at least 4 of each item.*
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- B. Choose a total of exactly 100 items
 B. Spend as close to \$7,999.99 without going over.

ItemRef	Item	Cost of one item
1	Samsang 7.2 Megapixel Digital Camera	\$89.99
2	NP 7" Digital Picture Frame	\$99.99
3	NP DVD+/-R discs, 15 pack	\$9.99
4	Micromedium LifeCam	\$29.99
5	Freds Progressive Scan DVD Player	\$40.99
6	Orange 4GB iPod nano	\$149.99
7	Dustdisk 2GB flash drive	\$17.99
8	Dimeton Laptop 1GB DDR2 Memory	\$34.99

I. TI-Nspire Lists and Spreadsheets

- A. After turning on the TI-Nspire handheld, Choose Home and select **3. Lists and Spreadsheets**. Press **Enter** or the **Click Button**.
- Highlight the white space just to the right of A in column A, type "Itemref".
 - While the space is still highlighted, press **MENU**. Highlighted is **1.ACTION**. Press the **RIGHT ARROW** on the navpad for **ACTION** choices.
 - From this menu, highlight **2.Resize**, and press the **Click Button**.
 - With the entire column highlighted, press the right arrow on the navpad to widen the column. Make sure the entire text is visible, then press the **Click Button**, then press **ESC** (escape).
 - Highlight the white space just to the right of B in column B, type "cost" for cost of each item and press **ENTER**.
 - Use the same procedure on column B as you used on Column A to widen the column.
 - Highlight the white space just to the right of C in column C, type "no" for number of items and press enter. It is not necessary to widen this column.
 - Highlight the white space just to the right of D in column D, type "totalcost" and press enter.
 - Widen column D .

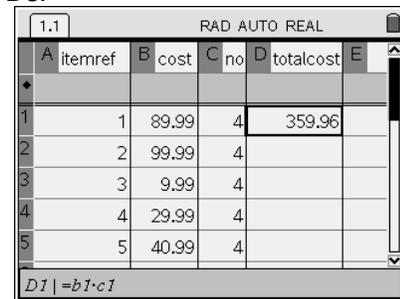


	A	B	C	D	E
1	Itemref	cost	no	totalcost	
2					
3					
4					
5					

II. Data Analysis, Functions

You are now ready to enter values and functions in the cells of your Lists and Spreadsheets.

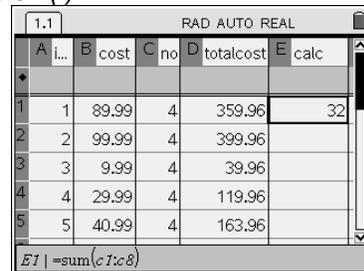
- A. Beginning in Cell A1, manually enter the reference number of each item available for purchase.
- B. Beginning in Cell B1, manually enter the cost of each item available for purchase.
- C. In cells C1 through C8, enter a 4, since at least 4 of each item must be purchased.
- D. Beginning in Cell D1, enter a function that will calculate the total cost of each item (individual item cost times number of this item purchased). Functions are indicated by entering = followed by the function or operation. In Cell D1, enter “=b1xc1” then ENTER. In Cell D2, enter “=b2xc2”. Continue with this pattern through Cell D8.



	A itemref	B cost	C no	D totalcost	E
1	1	89.99	4	359.96	
2	2	99.99	4		
3	3	9.99	4		
4	4	29.99	4		
5	5	40.99	4		

D1 | =b1*c1

- E. Highlight the white space to the right of the E in column E. Type “calc”, then widen the column until the entire text is visible.
- F. In cell E1, enter a function that will total the number of items purchased. (Exactly 100 items must be purchased.) Enter the function “=sum(c1:c8)” then ENTER. The colon (:) is found in the catalog. Press CTRL, the catalog key, then choose colon (:).



	A i...	B cost	C no	D totalcost	E calc
1	1	89.99	4	359.96	32
2	2	99.99	4	399.96	
3	3	9.99	4	39.96	
4	4	29.99	4	119.96	
5	5	40.99	4	163.96	

E1 | =sum(c1:c8)

- G. In cell E3, enter a function that will calculate the grand total of all the items purchased. Refer to the function entered in Cell E1. Justify the selection of this function to find the grand total of items purchased.
- H. The rest is up to you. Good luck. Change the number of items in column C to purchase as many or as few of each item as you wish. Remember, however:
 - a. You much purchase at least 4 of each item.
 - b. You much purchase exactly 100 items.
 - c. Your grand total should be as close as possible to \$7,999.99 without going over this amount.

When you are satisfied with your grand total, save your file as “Budget”, followed by your class period and your three initials. Example: Budget1sbl

1.1 RAD AUTO REAL					
A	itemref	B cost	C no	D totalcost	E
1					
2					
3					
4					
5					

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2	2	99.99	4		
3	3	9.99	4		
4	4	29.99	4		
5	5	40.99	4		

*D1 | =b1*c1*

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1	1	89.99	4	359.96	32
2	2	99.99	4	399.96	
3	3	9.99	4	39.96	
4	4	29.99	4	119.96	
5	5	40.99	4	163.96	

E1 | =sum(c1:c8)