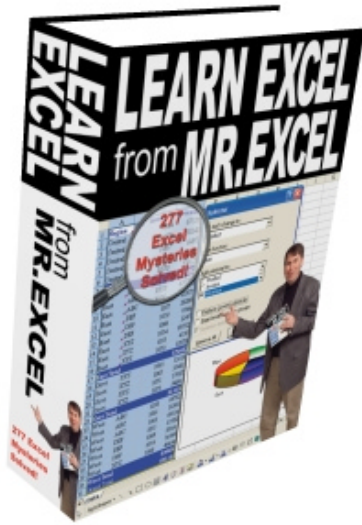




Free Preview – Week #10
Learn Excel from Mr Excel
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This week: There are three basic ways to enter formulas, and the method that you use says a lot about how long you've been using spreadsheets. Read about all three methods in the first tip today, then vote about your favorite method at <http://www.mrexcel.com/formulapoll.php>

The remaining three tips discuss AutoSum, why it doesn't always work, other features in AutoSum, and why =COUNT() might be returning the wrong results.

THREE METHODS OF ENTERING FORMULAS

Problem: There are three basic ways of entering simple calculations in Excel. Knowing all three ways will allow you to enter formulas faster, according to the situation. Consider the worksheet shown in Fig. 336.

	A	B	C	D	E	F	G
1							
		Case			Total	Total	Profit per
2	Item	Pack	Unit Cost	Unit Price	Cost	Price	Case
3	ABC	6	6.06	11.95			
4	DEF	6	6.18	13.45			
5	GHI	24	8.35	17.65			
6	JKL	1	1.53	2.95			
7	MNO	24	4.16	8.65			
8	PQR	1	2.71	5.65			
9	STU	6	3.67	7.45			
10	VWX	24	9.94	18.75			
11							

Fig. 336

In Fig. 336, you want to calculate total cost in E3 as the Case Quantity in B3 times the Unit Cost in C3.

Strategy: You can simply type the formula.

- 1) Put the cell pointer in E3 and type `=b3*c3`, as shown in Fig. 337, and then hit Enter.

	A	B	C	D	E
1					
		Case			Total
2	Item	Pack	Unit Cost	Unit Price	Cost
3	ABC	6	6.06	11.95	<code>=b3*c3</code>
4	DEF	6	6.18	13.45	

Fig. 337

- 2) The formula will calculate. You will see the original formula in the formula bar above E1. The worksheet itself will show the result of the calculation, as shown in Fig. 338.

		E3		fx =B3*C3	
	A	B	C	D	E
1					
2	Item	Case Pack	Unit Cost	Unit Price	Total Cost
3	ABC	6	6.06	11.95	36.36

Fig. 338

Advantage: If you are a good typist, you only need to type seven key-strokes.

Disadvantage: This method gets complicated when you are dealing with complex formulas.

Alternate Strategy: Use the arrow keys. Anyone who was using spreadsheets in the days of Lotus 1-2-3 often used this method. Once you have mastered this method, it is very fast and very intuitive.

- 1) Move the cell pointer to E3. As shown in Fig. 339, type an Equal sign to let Excel know that you are about to enter a formula.

	A	B	C	D	E
1					
2	Item	Case Pack	Unit Cost	Unit Price	Total Cost
3	ABC	6	6.06	11.95	=
4	DEF	6	6.18	13.45	

Fig. 339

- 2) Hit the Left Arrow. As shown in Fig. 340, a dotted border surrounds the cell to the left of E3. Excel starts to build a formula of =D3.

	A	B	C	D	E
1					
		Case			Total
2	Item	Pack	Unit Cost	Unit Price	Cost
3	ABC	6	6.06	11.95	=D3
4	DEF	6	6.18	12.45	

Fig. 340

- 3) Hit the Left Arrow key two more times. Your provisional formula is now =B3, as shown in Fig. 341.

	A	B	C	D	E
1					
		Case			Total
2	Item	Pack	Unit Cost	Unit Price	Cost
3	ABC	6	6.06	11.95	=B3
4	DEF	6	6.18	12.45	

Fig. 341

- 4) On the keyboard, hit the * key. You can either hit Shift+8 or use the Asterisk key on the numeric keypad. The dotted border will disappear from B3 and be replaced by a solid-colored border, as shown in Fig. 342. Hitting any operator key, such as Plus, Minus, Asterisk, or Slash, tells Excel that you are moving on to the next part of the formula.

	A	B	C	D	E
1					
		Case			Total
2	Item	Pack	Unit Cost	Unit Price	Cost
3	ABC	6	6.06	11.95	=B3*
4	DEF	6	6.18	12.45	

Fig. 342

- 5) Next, hit the Left Arrow key. The dotted border reappears. You now have a provisional formula of `=B3*D3`, as shown in Fig. 343. This isn't quite right, yet, but you're getting close.

	A	B	C	D	E
1					
		Case			Total
2	Item	Pack	Unit Cost	Unit Price	Cost
3	ABC	6	6.06	11.95	<code>=B3*D3</code>
4	DEF	6	6.18	13.45	

Fig. 343

- 6) Hit the Left Arrow key one more time. As shown in Fig. 344, the provisional formula is now correct.

	A	B	C	D	E
1					
		Case			Total
2	Item	Pack	Unit Cost	Unit Price	Cost
3	ABC	6	6.06	11.95	<code>=B3*C3</code>
4	DEF	6	6.18	13.45	

Fig. 344

- 7) Next, hit Enter. The formula will calculate. You will see the original formula in the formula bar above E1. The worksheet itself will show the result of the calculation.

Advantage: You never have to type cell references with this method. You merely point to them, using the arrow keys. If you are building formulas that are based on cells near the formula cell, formulas can be entered very quickly with this method.

Alternate Strategy: Use the mouse. Follow these steps.

- 1) As shown in Fig. 345, type an Equal sign. This tells Excel that you are about to enter a formula.

	A	B	C	D	E
1					
		Case			Total
2	Item	Pack	Unit Cost	Unit Price	Cost
3	ABC	6	6.06	11.95	=
4	DEF	6	6.18	13.45	

Fig. 345

- 2) Using the mouse, touch cell B3. Excel starts to build your formula, as shown in Fig. 346.

	A	B	C	D	E
1					
		Case			Total
2	Item	Pack	Unit Cost	Unit Price	Cost
3	ABC	6	6.06	11.95	=B3
4	DEF	6	6.18	13.45	

Fig. 346

- 3) Using the keyboard, hit the Asterisk key on the numeric keypad or the Shift+8 keys. See Fig. 347.

	A	B	C	D	E
1					
		Case			Total
2	Item	Pack	Unit Cost	Unit Price	Cost
3	ABC	6	6.06	11.95	=B3*
4	DEF	6	6.18	13.45	

Fig. 347

- 4) Using the mouse, touch cell C3. The provisional formula now looks correct, as shown in Fig. 348.

	A	B	C	D	E
1					
2	Item	Case Pack	Unit Cost	Unit Price	Total Cost
3	ABC	6	6.06	11.95	=B3*C3
4	DEF	6	6.18	13.45	

Fig. 348

- 5) Hit the Enter key. The formula will calculate. You will see the original formula in the formula bar above E1. The worksheet itself will show the result of the calculation.

Advantages of the Mouse: It is easy to use the mouse to directly touch the cells you need in the formula.

Disadvantage of the Mouse: It takes a long time to move your hands back and forth from the keyboard to the mouse. To enter the above formula, you have to hit a key, use the mouse, hit a key, use the mouse, and hit a key again. That is four movements back and forth from the keyboard to the mouse and back.

Summary: There are three basic methods for entering formulas in Excel. Using the right method for the situation can radically improve your efficiency.

Part II

USE AUTOSUM TO QUICKLY ENTER A TOTAL FORMULA

Problem: You have data in Excel, as shown in Fig. 349. You need to total the rows quickly.

	A	B	C	D	E	F
1	Item	Q1	Q2	Q3	Q4	Total
2	ABC	91	92	22	83	
3	DEF	31	41	17	33	
4	GHI	72	63	82	64	
5	JKL	21	98	4	90	
6	MNO	36	81	52	35	
7	PQR	22	90	87	75	
8	STU	65	85	72	34	
9	VWX	91	40	41	6	
10	Total					

Fig. 349

Strategy: Use the AutoSum button on the Standard toolbar. The AutoSum button looks like the Greek letter sigma, as shown in Fig. 350.

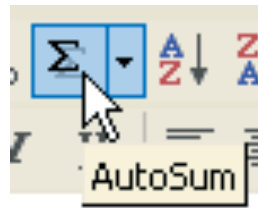


Fig. 350

- 1) Place the cell pointer in cell B10. Touch the AutoSum button, as shown in Fig. 351.

	A	B	C	D
1	Item	Q1	Q2	Q3
2	ABC	91	92	22
3	DEF	31	41	17
4	GHI	72	63	82
5	JKL	21	98	4
6	MNO	36	81	52
7	PQR	22	90	87
8	STU	65	85	72
9	VWX	91	40	41
10	Total	=SUM(B2:B9)		
11		SUM(number1, [number2], ...)		
12				

Fig. 351

- 2) Excel analyzes your data and predicts that you want to total the range of numbers above the cell pointer. As shown in Fig. 352, Excel enters a provisional formula of =SUM(B2:B9). Hit Enter to accept this formula.

B10		fx =SUM(B2:B9)			
	A	B	C	D	E
1	Item	Q1	Q2	Q3	Q4
2	ABC	91	92	22	83
3	DEF	31	41	17	33
4	GHI	72	63	82	64
5	JKL	21	98	4	90
6	MNO	36	81	52	35
7	PQR	22	90	87	75
8	STU	65	85	72	34
9	VWX	91	40	41	6
10	Total	429			

Fig. 352

**Part
II**

- 3) The square dot in the lower right corner of the cell pointer is the AutoFill handle. With the mouse, drag the Fill handle to the right to include cells C10 through F10. Release the mouse button and the formula will be copied to all five columns.

Summary: The AutoSum button on the Standard toolbar is a powerful tool for quickly entering a total formula.

Functions Discussed: =SUM()

AUTOSUM DOESN'T ALWAYS PREDICT MY DATA CORRECTLY

Problem: When using the AutoSum button, Excel sometimes predicts the wrong range of data to total. In Fig. 353, the AutoSum worked fine in F2 and F3, but in cell F4, Excel gets fooled into thinking that you want to total the rows above F4.



Fig. 353

Strategy: After hitting the AutoSum button, the provisional range address is highlighted in the provisional formula. Using your mouse, highlight the right range.

As shown in Fig. 353, AutoSum will work correctly in B2 and B3. It will predict that you want to sum the data in that row. However, in cell B4 Excel has a choice: do you want to sum the two cells in that column or the four cells in the row? Excel always chooses to sum the two cells above in this situation.

After hitting the AutoSum button, note that F2:F3 is highlighted in the formula. This allows you to enter the correct range. There are three methods:

- 1) With the mouse, highlight B4:E4 and hit Enter.
- 2) With the keyboard, type B4:E4.
- 3) Using the arrow keys, hit the Left Arrow to move to E2. Hit the Down Arrow twice to move to E4. While holding down the Shift key, hit the Left Arrow three times to highlight B4:E4, as shown in Fig. 354.

4)

	A	B	C	D	E	F	G	H
1	Item	Q1	Q2	Q3	Q4	Total		
2	ABC	91	92	22	83	288		
3	DEF	31	41	17	33	122		
4	GHI	72	63	82	64	=SUM(B4:E4)		
5	JKL	21	98	4	90	SUM(number1, [number2], ...)		

Fig. 354

Additional Details: The problem described in this section will always happen in the third and fourth rows of the data. When you try using the AutoSum button in F6 and beyond, Excel will correctly sum all the data in that row.

AutoSum can also fail when one number in your range contains a SUM formula. The provisional formula will offer to sum a formula extending up to but not including the previous SUM formula.

Alternate Strategy: You can choose to enter all of the totals at one time by using the AutoSum button. This is faster and will eliminate the problem described above. Follow these steps.

- 1) Highlight the entire range that needs a SUM formula as shown in Fig. 355.

	A	B	C	D	E	F
1	Item	Q1	Q2	Q3	Q4	Total
2	ABC	91	92	22	83	
3	DEF	31	41	17	33	
4	GHI	72	63	82	64	
5	JKL	21	98	4	90	
6	MNO	36	81	52	35	
7	PQR	22	90	87	75	
8	STU	65	85	72	34	
9	VWX	91	40	41	6	
10	Total	429	590	377	420	

Fig. 355

**Part
II**

- 2) Hit the AutoSum button. Excel makes a prediction and fills in the total formulas automatically, as shown in Fig. 356. Excel does not show the provisional formula. So, check one formula to see that it is correct.

	A	B	C	D	E	F
1	Item	Q1	Q2	Q3	Q4	Total
2	ABC	91	92	22	83	288
3	DEF	31	41	17	33	122
4	GHI	72	63	82	64	281
5	JKL	21	98	4	90	213
6	MNO	36	81	52	35	204
7	PQR	22	90	87	75	274
8	STU	65	85	72	34	256
9	VWX	91	40	41	6	178
10	Total	429	590	377	420	1816

Fig. 356

Summary: The AutoSum function does not always correctly predict the range to be totaled. It is easy to use the mouse or keyboard to show Excel the correct range.

Functions Discussed: =SUM()

USE AUTOSUM BUTTON TO ENTER AVERAGES, MIN, MAX, AND COUNT

Problem: Instead of totals, you need to enter an Average formula quickly, as shown in Fig. 357.

	A	B
4	Time	Reading
5	1:00 AM	86.2
6	1:05 AM	86.22
7	1:10 AM	86.21
8	1:15 AM	86.26
9	1:20 AM	86.24
10	1:25 AM	86.31
11	1:30 AM	86.33
12	1:35 AM	86.33
13	1:40 AM	86.43
14	1:45 AM	86.61
15	1:50 AM	86.88
16	1:55 AM	87.18
17	Average	

Fig. 357

Strategy: Use the dropdown arrow located next to the AutoSum button, as shown in Fig. 358. Instead of selecting Sum, use the Average option.

	A	B	C	D	E
4	Time	Reading			
5	1:00 AM	86.2			
6	1:05 AM	86.22			
7	1:10 AM	86.21			
8	1:15 AM	86.26			
9	1:20 AM	86.24			
10	1:25 AM	86.31			
11	1:30 AM	86.33			
12	1:35 AM	86.33			
13	1:40 AM	86.43			
14	1:45 AM	86.61			
15	1:50 AM	86.88			
16	1:55 AM	87.18			
17	Average	=AVERAGE(B5:B16)			
18		AVERAGE(number1, [number2], ...)			
19					

Fig. 358

Excel enters a provisional Average formula, as shown in Fig. 359.

	A	B	C	D	E
4	Time	Reading			
5	1:00 AM	86.2			
6	1:05 AM	86.22			
7	1:10 AM	86.21			
8	1:15 AM	86.26			
9	1:20 AM	86.24			
10	1:25 AM	86.31			
11	1:30 AM	86.33			
12	1:35 AM	86.33			
13	1:40 AM	86.43			
14	1:45 AM	86.61			
15	1:50 AM	86.88			
16	1:55 AM	87.18			
17	Average	=AVERAGE(B5:B16)			
18		AVERAGE(number1, [number2], ...)			
19					

Fig. 359

If Excel correctly predicted your data, as shown in Fig. 360, hit Enter to accept the formula.

	B17		fx =AVERAGE(B5:B16)			
	A	B	C	D	E	
4	Time	Reading				
5	1:00 AM	86.2				
6	1:05 AM	86.22				
7	1:10 AM	86.21				
8	1:15 AM	86.26				
9	1:20 AM	86.24				
10	1:25 AM	86.31				
11	1:30 AM	86.33				
12	1:35 AM	86.33				
13	1:40 AM	86.43				
14	1:45 AM	86.61				
15	1:50 AM	86.88				
16	1:55 AM	87.18				
17	Average	86.43333				

Fig. 360

Additional Details: Excel does NOT remember the last setting of the AutoSum button. If you do an Average and then use just the AutoSum button, it will return to using a SUM formula.

Additional Details: The Max option will use the MAX function to find the largest numeric value. The Min option will use the MIN function to return the smallest numeric value. The Count option will count the number of numeric entries in the list using the COUNT function.

Summary: The dropdown arrow next to the AutoSum function offers access to finding the Average, Min, Max, or Count of a range.

Functions Discussed: =AVERAGE(); =MIN(); =MAX(); =COUNT()

THE COUNT OPTION OF THE AUTOSUM DOESN'T APPEAR TO WORK

Problem: You are using the Count option from the dropdown next to the AutoSum button on the toolbar. It does not appear to provide consistent results. In Fig. 361, cells B11 and C11 both contain a count of the cells in rows 2 through 10 of each column. One function indicates that there are nine entries; the other function indicates there are only two. Clearly, both columns have nine entries.

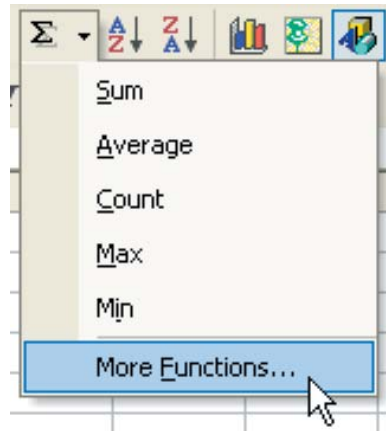
B11		fx =COUNT(B2:B10)			
	A	B	C	D	
1		Purchase Order	Amount		
2		A12345	878.31		
3		05J123	566.41		
4		WMJ987	165.91		
5		9878	115.97		
6		KJHK98	788.5		
7		87-9878	890.7		
8		34H8987	665.17		
9		87888	161.94		
10		H12354	681.09		
11	Count:	2	9		

Part II

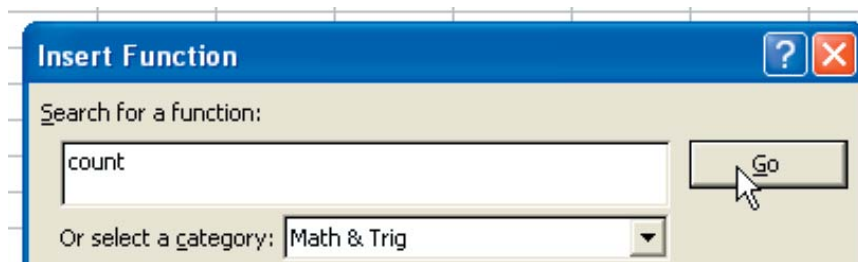
Fig. 361

Strategy: The COUNT function will only count numeric entries. If you need to count all entries, you have to use the COUNTA function. One solution is to edit the formula in B2 and add an A after the T in COUNT. The other method is to enter the formula correctly in the first place.

- 1) Put the cell pointer in B11. Choose the dropdown arrow next to the AutoSum button. From the list, select More Functions..., as shown in Fig. 362.

*Fig. 362*

- 2) There are hundreds of functions available. You can never remember if COUNTA is in the Math & Trig section or somewhere else. Type the word "count" in the search box and choose Go, as shown in Fig. 363.

*Fig. 363*

Excel will return a list of all functions related to the COUNT function. A description of the selected function appears below the list, as shown in Fig. 364.

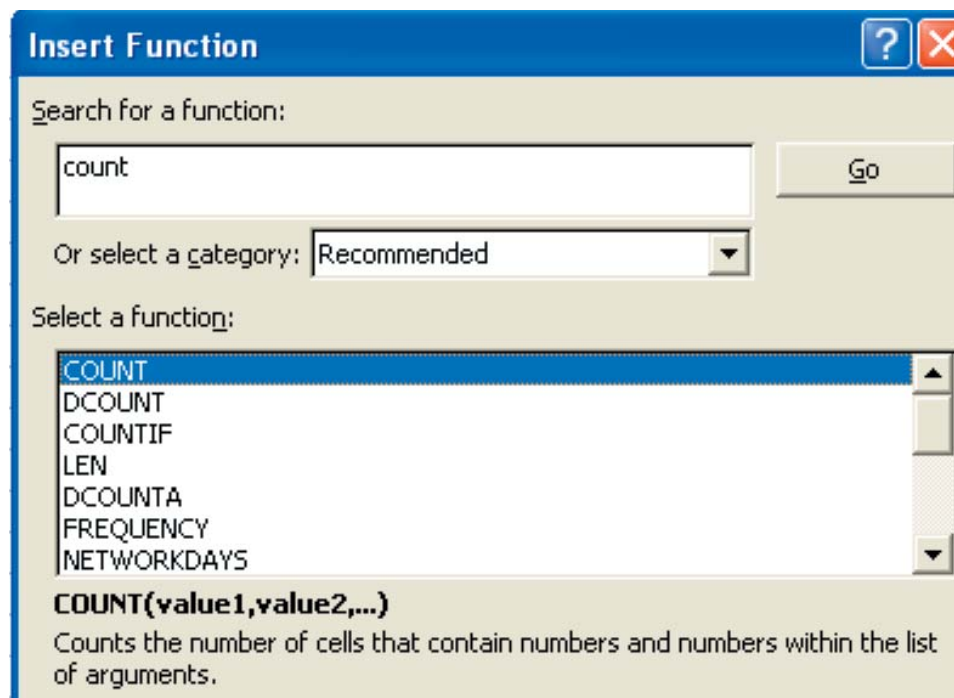


Fig. 364

- 3) You might need to scroll through the list to find the COUNTA function. As shown in Fig. 365, when you find COUNTA, choose OK.

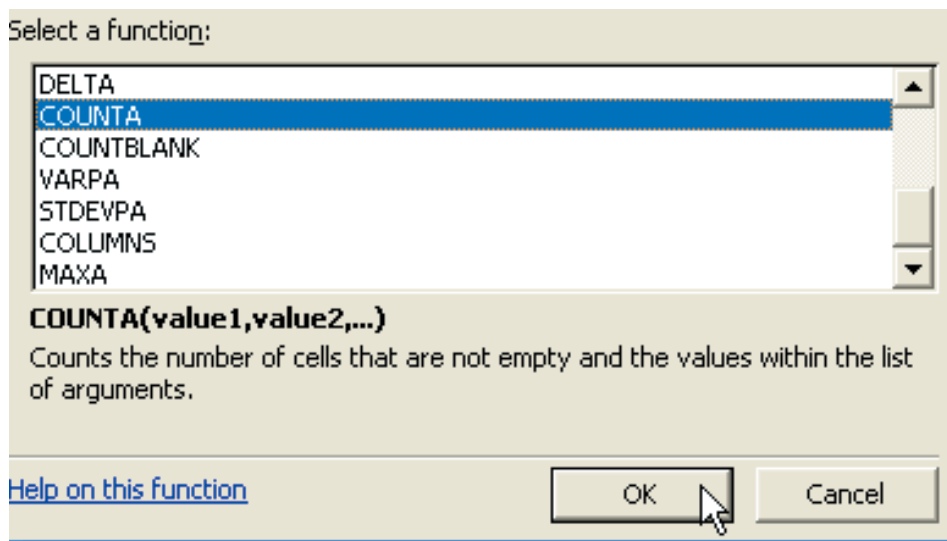


Fig. 365

You will now see the Function Arguments dialog box. Excel has analyzed your data and predicted the range that you want to use. However, Excel is not good at predicting data when the range contains numeric and alphanumeric entries. In this particular case, as shown in Fig. 366, Excel assumes we only want to COUNTA the range B9:B10.

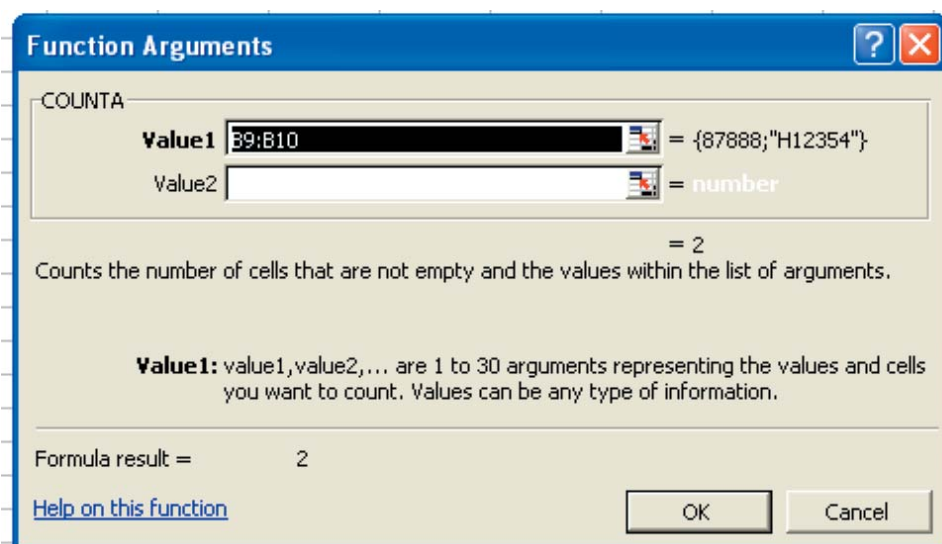


Fig. 366

- 4) If you can see the data on the worksheet, use the mouse and highlight the correct range, as shown in Fig. 367.

	A	B	C	D	E
1		Purchase Order	Amount		
2		A12345	878.31		
3		05J123	566.41		
4		WMJ987	165.91		
5		9878	115.97		
6		KJHK98	788.5		
7		87-9878	890.7		
8		34H8987	665.17		
9		87888	161.94		
10		H12354	681.09		
11	Count:	TA(B2:B10)	9R x 1C		
12					

Fig. 367

- 5) Release the mouse. Choose OK in the function arguments dialog to accept the formula.

Result: As shown in Fig. 368, the COUNTA function returns the proper value.

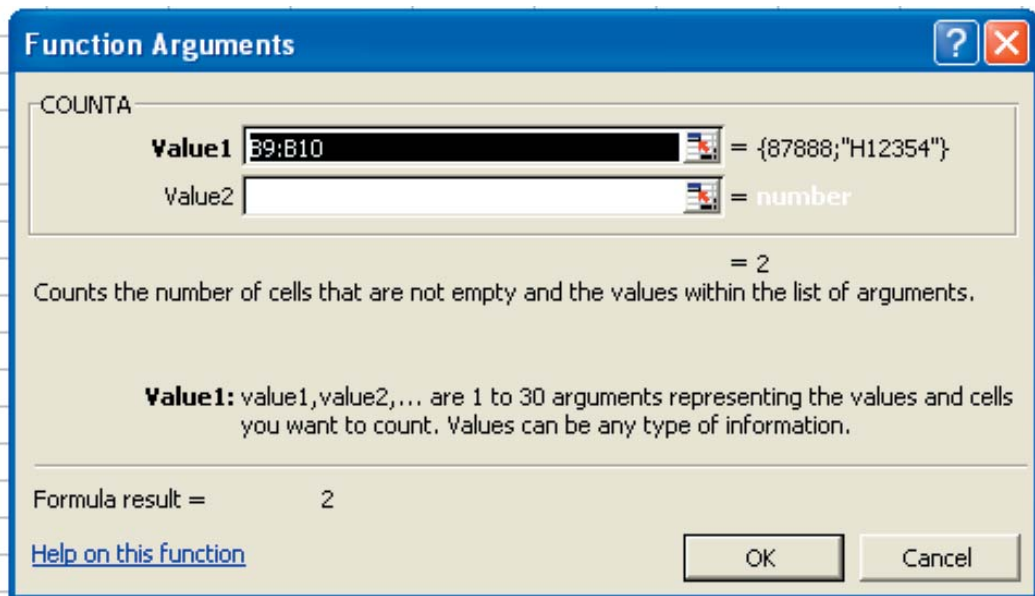


Fig. 368

Summary: The COUNT function does not count text entries in a list. Use the COUNTA function instead.

Functions Discussed: =COUNT(); =COUNTA()