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Working with Basic Functions

J In Fun	fr -	itoSum ▼ cently Used nancial ▼	in to				
	MAX - 🤉						
	А	В	С				
1	=SUM(19.9	99, <mark>89,</mark> C9:0	:11)				
2	SUM(number1, [number2], [I						
3							

Figuring out formulas for calculations you want to make in Excel can be tedious and complicated. Fortunately, Excel has an entire library of **functions** or **predefined formulas** that you can take advantage of. You may be familiar with common functions like **sum**, **average**, **product** or **count**, but there are hundreds of functions in Excel, even for things like formatting text, referencing cells, calculating financial rates, analyzing statistics, and more.

In this lesson, you will learn the basics of inserting common functions into your worksheet by utilizing the **AutoSum** and **Insert Functions** commands. You will also become familiar with how to **search and find various functions**, including exploring Excel's **Functions Library**.

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Basic Functions

A **function** is a **predefined formula** that performs calculations using specific values in a particular order. One of the key benefits of functions is that they can save you time since you do not have to write the formula yourself. Excel has hundreds of different functions to assist with your calculations.

In order to use these functions correctly, you need to understand the different **parts of a function** and how to create **arguments** in functions to calculate values and cell references.



 Watch the video to learn how to insert functions into your worksheet.

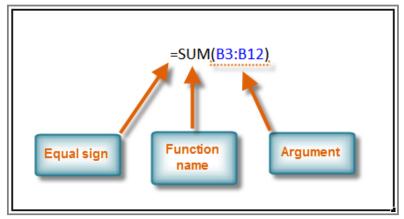
The Parts of a Function

The order in which you insert a function is important. Each function has a specific order, called **syntax**, which must be followed for the function to work correctly. The basic syntax to create a formula with a function is to insert an **equal sign (=)**, a **function name** (SUM, for example, is the function name for addition), and an **argument**. Arguments contain the information you want the formula to calculate, such as a range of cell references.



Watch the video (5:11). Need help?





Syntax of a basic function

Working with Basic Arguments

Arguments must be enclosed in **parentheses**. Individual values or cell references inside the parentheses are separated by either **colons** or **commas**.

- Colons create a reference to a range of cells.
 - For example, =AVERAGE(E19:E23) would calculate the average of the cell range E19 through E23.
- Commas separate individual values, cell references, and cell ranges in the parentheses. If there is more than one argument, you must separate each argument by a comma.

For example, **=COUNT(C6:C14,C19:C23,C28)** will **count** all the cells in the three arguments that are included in parentheses.

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To Create a Basic Function in Excel:

- 1. Select the cell where the answer will appear (F15, for example)
- 2. Type the equal sign (=) and enter the function name (SUM, for example).



\$12.20	\$61.00	8-Aug	11-Aug	
\$7.33	\$36.65	8-Aug	11-Aug	
	=SUM	_		
	€ SUM	Adds all	the numbers in a ra	nge of cells
	🕼 SUMIF			
Unit Price	SUMIFS	Ordered	Date Received	
\$12.03	SUMPRODUCT	18-Sep	26-Sep	
\$15.95	SUMX2MY2	18-Sep	26-Sep	
\$5.87	€ SUMX2PY2	8-Aug	14-Aug	
\$8.83	€ SUMXMY2	8-Aug	14-Aug	
\$13.54	\$27.08	22-Jul	29-Jul	

Creating a SUM function

3. Enter the cells for the **argument** inside the parenthesis.

Unit Price	Subtotal	Date Ordered	Date Received
\$5.86	\$58.60	12-Sep	17-Sep
\$40.26	\$80.52	12-Sep	17-Sep
\$4.20	\$42.00	6-Sep	12-Sep
\$6.19	\$74.28	6-Sep	12-Sep
\$3.20	\$48.00	6-Sep	12-Sep
\$3.40	\$17.00	6-Sep	12-Sep
\$4.10	\$32.80	6-Sep	12-Sep
\$12.20	\$61.00	8-Aug	11-Aug
\$7.33	\$36.65	8-Aug	11-Aug
	=SUM(F6:F1	4)	

Adding cells to the function argument

4. Press Enter and the result will appear.

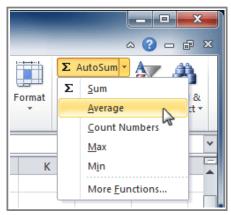
\$450.85	
Result	

Using AutoSum to select Common Functions:

The **AutoSum** command allows you to automatically return the results for a range of cells for common functions like SUM and AVERAGE.

- 1. Select the cell where the answer will appear (E24, for example).
- 2. Click on the **Home** tab.
- 3. In the **Editing** group, click on the **AutoSum** drop-down arrow and select the function you desire (Average, for example).





AutoSum command

4. A formula will appear in the selected cell E24. If logically placed, AutoSum will select your cells for you. Otherwise, you will need to click on the cells to choose the argument you desire.

Unit Price	Subtotal	Date Ordered	Date Received				
\$12.03	\$36.09	18-Sep	26-Sep				
\$15.95	\$31.90	18-Sep	26-Sep				
\$5.87	\$58.70	8-Aug	14-Aug				
\$8.83	\$88.30	8-Aug	14-Aug				
\$13.54	\$27.08	22-Jul	29-Jul				
=AVERAGE(<mark>E</mark>	19:E23)						
AVERAGE(number1, [number2],)							
	Subtotal						

AutoSum selects and dsiplays cell range

5. Press Enter and the result will appear.



The AutoSum command can also be accessed from the Formulas tab.

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Function Library

There are hundreds of functions in Excel, but only some will be useful for the kind of data you are working with. There is no need to learn every single function, but you may want to explore some of the different kinds to get ideas about which ones might be helpful to you as you create new spreadsheets.

A great place to explore functions is in the Function Library on the Formulas tab. Here you may search and



select Excel functions based on categories such as **Financial**, **Logical**, **Text**, **Date & Time**, and more. Review the following interactive to learn more.

To Insert a Function from the Function Library:

- 1. Select the cell where the answer will appear (I6, for example)
- 2. Click on the Formulas tab.
- 3. From the **Function Library** group, select the **function category** you desire. In this example, we will choose Date & Time.
- 4. Select the desired **function** from the Date & Time drop-down menu. We will choose the NETWORKDAYS function to count the days between the order date and receive date in our worksheet.

	ame nager ≌ Cr Define		
	nager 🎬 Cr		
	Define		
E	F		
	Subtota		
\$5.86			
\$40.26	\$80.5		
\$4.20	\$42.0		
start_date,end_date,holidays)			
f whole wor	kdays		
SEC between two dates.			
elp.			
	\$40.26 \$4.20		

Function Library Date & Time category

5. The **Function Arguments** dialog box will appear. Insert the cursor in the **first field** and then enter or select the cell(s) you desire (G6, for example).



ntity	Туре	Unit Price	Subtotal	ate Ordered	Date Received	Delivery Time	2				
-	boxes	\$5.86	\$58.60	12-Sep		KDAYS(G6)					
2	cartons	\$40.26	\$80.52	12-Sep	17-Sep						
F	unction Argu	ments		6 (mp)	10.0		? <mark>x</mark>				
	NETWORKDA	YS									
_		Start_date G	6	E	🔬 = 40433						
-		End_date		E	🛐 = any						
		Holidays		Ē	🔄 = any						
nti	= Returns the number of whole workdays between two dates. Start_date is a serial date number that represents the start date. Iti										
	Formula result	=									
-	<u>Help on this fur</u>	nction				ОК	Cancel				
5	TUTTES	212 11	2// 1/2	//-1111	/7-1110						

Selecting cell for the Start-date field

6. Insert the cursor in the next field and then enter or select the cell(s) you desire (H6, for example).

tity	Туре	Unit Price	Subtotal	Date Ordered	Date Received	Delivery Time				
10	boxes	\$5.86	\$58.60	12-Sep	🗘 17-Sep	AYS(G6,H6)				
2	cartons	\$40.26	\$80.52	12-Sep	1/-Sep	2				
r	Function Argu	ments	140.00	in test		_	? x			
:	NETWORKDA	rs								
		Start_date	G6		iiii = 40433					
		End_date	н6		= 40438					
		Holidays			🔣 = any					
tire	= 5 Returns the number of whole workdays between two dates. End_date is a serial date number that represents the end date.									
	Formula result = 5 View formula result Help on this function OK Cancel									

Selecting cell for the End_date field

7. Click **OK** and the result will appear. Our results show that it took 5 days to receive the order.



Date Ordered	Date Received	
12-Sep	17-Sep	5

Result

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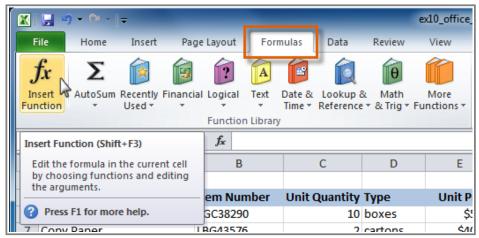
Insert Function Command

The **Insert Function** command is convenient because it allows you to search for a function by typing a description of what you are looking for or by selecting a category to peruse. The Insert Function command can also be used to easily enter or select more than one argument for a function.

Using the Insert Function command:

In this example, we want to find a function that will count the total number of supplies listed in the Office Supply Order Log. The basic COUNT function only counts cells with numbers; we want to count the cells in the Office Supply column, which uses text. Therefore, we will need to find a formula that counts cells with text.

- 1. Select the cell where the answer will appear (A27, for example)
- 2. Click on the Formulas tab and select the Insert Function command.



Insert Function command

- 3. The Insert Function dialog box will appear.
- 4. Type a **description** of the function you are searching for and click **Go**. For our example, we will type: *Count cells with text*. (You may also search by selecting a category.)



9	Binder Clips (Multi)	CP		
10	Pens (Blue)	ĸ	Insert Function	
11	Pens (Red)	ĸ	Search for a function:	
12	Highligher Pens (Yellow)	S	Count cells with text	Gon
13	Sticky Notes	JL		
14	Staples	S١	Or select a category: All	▼
15				
16			Select a functio <u>n</u> :	
17	USFoods		ABS	
18	Office Supply	It	ACCRINTM ACOS	Type a brief description of
19	Coffee Filters	78	ACOSH	the function you are
20	Creamer	98	ADDRESS AGGREGATE	searching for and click Go
21	Paper Towels	70	ABS(number)	
22	Hand Soap	90		of a number, a number without its sign.
23	Garbage Bags	58		
24				
25				
26	Total Supplies		Help on this function	OK Cancel
27	=			Cancer
20				

Searching for a function

5. Review the results to find the function you desire. We will use COUNTA. Then click **OK**.

Insert Function	2 ×						
Search for a function:							
Count cells with Text	Go						
Or select a category: Recommended							
Select a function:							
COUNT COUNTIF DCOUNT COUNTBLANK TEXT	Review the recommended results and select a function. Then click OK.						
COUNTA	-						
COUNTA(value1,value2,) Counts the number of cells in a range that are not empty.							
Help on this function	OK Cancel						

Reviewing function search results

6. The **Function Arguments** dialog box will appear. Insert the cursor in the **first field** and then enter or select the cell(s) you desire (A6:A14, for example).



		Function Library				Defined	Names		Formula Audit	ing
	COUNTA + (* X	✓ fx =COUNTA(A6:A14)							
4	A	В	С	D	E	F	G	н	T	
4	Office Max									
5	Office Supply File Folders	Function Argumen	ts	-	and Miles	And a state	Same Suffered	? ×		
7	Copy Paper	COUNTA								
8	Paperclips	d Val	lue1 A6:A14		1	= {"File Folde	ers ";"Copy Paper";"F	aperc		
9	Binder Clips (Multi)	ya va	lue2			= number				
1	Pens (Blue)	1K.								
1	Pens (Red)			A 12	n	2002 32	15			
1	Highligher Pens (Yellow)	s is	Sel	ect cell	range fo	r first a	rgument.			
1	Sticky Notes	1								
14	Staples	s	_			= 9		_		
1		Counts the number	of cells in a rang	e that are not	empty.					
16			Va	lue1: value1	value2 are 1 t	o 255 argumer	nts representing the	values and cells		
17	USFoods			you wa	ant to count. Value	s can be any t	type of information.			
18	Office Supply	1								
19	Coffee Filters	7 Formula result = 9								
20	Creamer	g								
21	Paper Towels	7 Help on this function	1				ОК	Cancel		
22	Hand Soap	9	-							
23	Garbage Bags	589kjyu	2	boxes	\$13.54	\$27.08	22-Jul	29-Jul		
24				000000		1965-1965				

Selecting cell range for Value1 field

7. Insert the cursor in the **next field** and then enter or select the cell(s) you desire (A19:A23, for example). (You may continue to add additional arguments if needed.)

15	Function Arguments			5 ×
16 17 USFoods	COUNTA			
18 Οπιζε δυρριγ	Value1	A6:A14		= {"File Folders "; "Copy Paper"; "Paperc
19 Coffee Filters	Value2	A19:A23		= {"Coffee Filters"; "Creamer"; "Paper T
20 Creamer	Value3		1	number
2 Paper Towels		Colore		
22 Hand Soap				for next argument.
28 Garbage Bags			Click OK wi	nen finished.
24	Counts the number of cell	s in a range that are no	ot empty.	
25		Value2: value	1.value2 are 1 t	o 255 arguments representing the values and cells
26 Total Supplies	you want to count. Values can be any type of information.			
27 =COUNTA(A6:A14,A19:A23)				
28	Formula result = 14			
29	Tormoloreson - Tr			
H + H Sheet1 Sheet2 Sh	Help on this function			OK Cancel
Point	L			N

Selecting cell range for Value2 field

8. Click **OK** and the result will appear. Our results show that 14 Total Supplies were ordered from our log.



Result



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Challenge!



- 1. Open an existing Excel 2010 workbook. If you want, you can use this example.
- 2. Create a function that contains more than one argument.
- 3. Use AutoSum to insert a function. If you are using the example, insert the MAX function in cell E15 to find the highest priced supply.
- 4. Insert a function from the Functions Library. If you are using the example, find the PRODUCT function (multiply) to calculate the Unit Quantity times the Unit Price in cells F19 through F23.
- 5. Use the Insert Function command to search and explore functions.