

Section 3

Formulas and Functions

Absolute Cell References

In earlier exercises, you used Relative Cell Addressing to move and copy formulas from one part of a worksheet to another. Relative cell addresses update as they are moved from one area of a worksheet to another. In contrast, absolute cell addresses do not change. They absolutely remain the same no matter their position on the worksheet.

In this exercise, you will learn to apply absolute cell addressing using the absolute key (**F4** function key).

1. Open the file **Sales Contest Revised**.
2. Save as **Sales Contest with Goals**.
3. In cell **G5** type the title **% of Goal Met**.
4. Use the Format Painter to duplicate the formatting from cell F5 to G5.
The title should word wrap and appear in bold text.
5. In cell **A14**, type **Sales Goal**.
6. In cell **B14**, type **\$700**.

	A	B	C	D	E	F	G
5	Sales Rep	Exploding Birdseed	Portable Holes	Brick Walls	Rubber Bands	Total Sales	% of Goal Met
6	W. Koyote	220	127	155	123	625	=F6/B14
7	B. B. Wolf	120	236	175	246	777	
8	B. Bear	275	245	180	210	910	
9	C. Sam	250	200	195	200	845	
10	T. Devil	225	195	150	195	765	
11							
12	Totals	1,090	1,003	855	974	3,922	
13	Average Sales	218.0	200.6	171.0	194.8	784.4	
14	Sales Goal	\$700					
15							
16							

7. Create a formula in cell **G6** that will divide the actual sales in cell **F6** by the sales goal in cell **B14**.
The answer \$0.89 appears in the cell.
8. Format the answer for % with no decimals.
9. Copy the formula to cells **G7** through **G10**.
The answers appear as an error message #DIV/0! (no division by zero allowed).

	A	B	C	D	E	F	G	H
5	Sales Rep	Exploding Birdseed	Portable Holes	Brick Walls	Rubber Bands	Total Sales	% of Goal Met	
6	W. Koyote	220	127	155	123	625	\$0.89	
7	B. B. Wolf	120	236	175	246	777	#DIV/0!	
8	B. Bear	275	245	180	210	910	#DIV/0!	
9	C. Sam	250	200	195	200	845	#DIV/0!	
10	T. Devil	225	195	150	195	765	#DIV/0!	
11								
12	Totals	1,090	1,003	855	974	3,922		
13	Average Sales	218.0	200.6	171.0	194.8	784.4		
14	Sales Goal	\$700						

As the formula was copied from row 6 to row 7, the cell addresses in the formula updated from **F6/B14** to **F7/B15**. Since **B15** is an empty cell, Excel returns an error message indicating that division by zero is not mathematically defined. It is necessary to create an absolute cell reference for cell address **B14** in the formula so it will not change as you copy the formula. Absolute cell references display a dollar sign (\$) in the cell address. For each of the sales representatives, the sales goal of **\$700** is located in the same cell, **B14**. In this exercise, you will create an absolute cell reference to correct the problem.

1. Double-click on cell **G6**.
The formula opens for editing.
2. Click anywhere in the cell address **B14**.
3. Press the <F4> key (the absolute key).
*The cell address is updated to **\$B\$14**.*

	A	B	C	D	E	F	G	H
5	Sales Rep	Exploding Birdseed	Portable Holes	Brick Walls	Rubber Bands	Total Sales	% of Goal Met	
6	W. Koyote	220	127	155	123	625	=F6/\$B\$14	
7	B. B. Wolf	120	236	175	246	777	#DIV/0!	
8	B. Bear	275	245	180	210	910	#DIV/0!	
9	C. Sam	250	200	195	200	845	#DIV/0!	
10	T. Devil	225	195	150	195	765	#DIV/0!	
11								
12	Totals	1,090	1,003	855	974	3,922		
13	Average Sales	218.0	200.6	171.0	194.8	784.4		
14	Sales Goal	\$700						
15								

4. Press <Enter> to complete the edit.
5. Copy the to cells **G7** through **G10**.
The correct percentages appear in the column.
6. Save the file **Sales Contest with Goals** with the changes and leave the file open for the next exercise.

Information Icons

You may have noticed an Information Icon appear if you clicked in a cell when the **#DIV/0!** error message was displayed. If you point to the Information Icon, it will notify you that division by zero is an error. If you click on the icon, more information will be displayed about the error and options will be displayed for correcting the error.

D	E	F	G	H	I
Brick Walls	Rubber Bands	Total Sales	% of Goal Met		
155	123	625	\$0.89		
175	246		#DIV/0!		
180	210				
195	200				
150	195				
855	974	3			
171.0	194.8				

Complex Functions

Complex functions require multiple “arguments” to complete the function. Arguments are individual pieces of information that are required in order to process a logical calculation. In this section,

you will learn to create a logical IF statement and a financial PMT function.

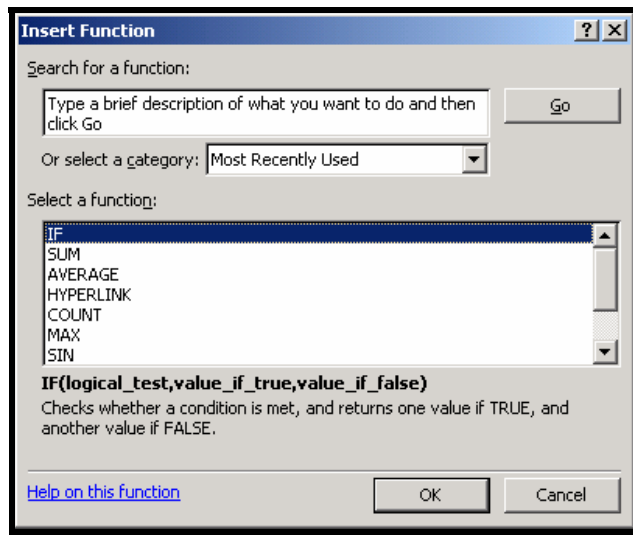
IF Function

When you create an =IF formula, three arguments are required. Commas must separate each argument. The syntax (punctuation) for an =IF statement is as follows:

Function name	condition	true results	false results
=IF	(cell >=1,	“Yes”,	“No”)

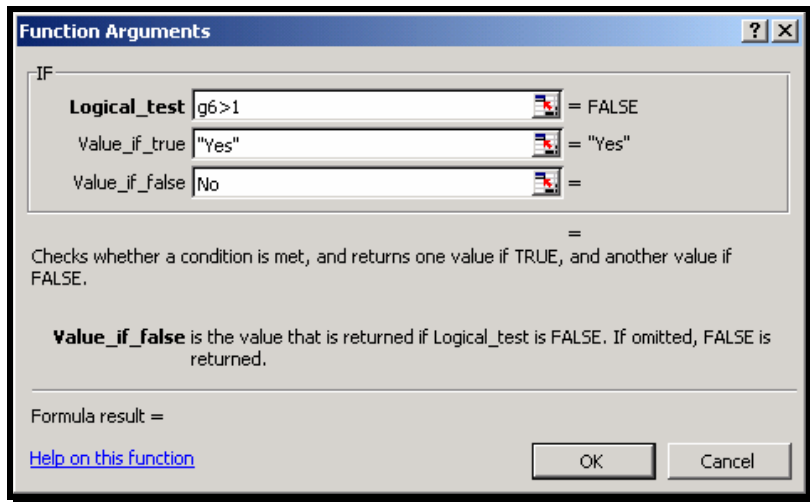
In the following exercise, you will create an =IF formula to determine whether a sales representative met the established sales goal. In addition to basic functions, the **AutoSum** button also provides a link to More Functions. You will use this feature to create the IF formula.

1. The file **Sales Contest with Goals** should still be open.
2. Click on cell **H5** to activate.
3. Type **Sales Goal Exceeded**.
4. Format the text to word wrap in the cell and place in bold font.
5. Click on cell **H6** to activate.
6. Click on the **AutoSum** list arrow and choose **More Functions...**



7. Select the **IF** function from the **Insert Function** list.
8. Click **[OK]**.

The Formula Arguments dialog appears.



9. In the **Logical_test** text box, type: **G6>1**
10. In the **Value_if_true** text box, type **yes**
11. In the **Value_if_false** text box, type **no**
12. Click **[OK]**.
The word No should appear in the cell.
13. Copy the formula to cells **H7** through **H10**.
The word Yes should appear in the remaining answer cells.

	B	C	D	E	F	G	H
1	ACME Corporation						
2	Sales Contest						
3	September 19, 2000						
4							
5	Exploding Birdseed	Portable Holes	Brick Walls	Rubber Bands	Total Sales	% of Goal Met	Sales Goal Exceeded
6	220	127	155	123	625	89%	No
7	120	236	175	246	777	111%	Yes
8	275	245	180	210	910	130%	Yes
9	250	200	195	200	845	121%	Yes
10	225	195	150	195	765	109%	Yes
11							
12	1090	1003	855	974	3922		
13	218.0	200.6	171.0	194.8	784.4		
14	\$ 700						

14. Save the file **Sales Contest with Goals** and close.

Section 3

Summary Exercises

Part One

1. Open the practice file **Division Sales**.
2. Select the **January** sales.
3. Use the AutoCalculator to calculate the total sales for January.
4. Write the total sales for January here: _____
5. Use the AutoCalculator to calculate the total sales for February.
6. Write the total sales for February here: _____
7. Use the AutoCalculator to calculate the total sales for March.
8. Write the total sales for March here: _____
9. Use the AutoCalculator to calculate the average sales for January through March.
10. Write the average sales for January through March here:

11. Close the **Division Sales** file.
12. Open the file **Stats**.
13. In cell **A14**, create a formula that will count the number of students in the **A** column.
14. Use the AutoCalculator to verify the count formula.
15. Save the **Stats** file with the formula.

Part Two

1. A new enhancement to Excel XP added more functions to the _____ button located on the Standard toolbar.
2. To change functions on the AutoCalculator, _____ - _____ on the AutoCalculator button on the status bar to display the context menu.

3. To view additional functions added to the AutoSum feature, click on the list arrow to the right of the button.
(True / False)
4. A relative cell address is convenient when you want cell addresses to update when you copy or move formulas on the worksheet but an _____ cell address is used when a cell address should not change.
5. The _____ function key makes it easy to add dollar signs to a cell address in a formula, changing it to an absolute cell address.
6. Complex functions require more than one range or _____ in order to perform the calculation or logical operation.
7. In a complex function, the _____ symbol is used to separate arguments within the parentheses.
8. An _____ formula allows you to set up a conditional statement which will compare two values.
9. A _____ function will assist you in calculating the amount of payments required to pay off a Present Value with added interest over a set number of periodic payments.