Exam 77-728 Microsoft Excel 2016 Expert

Microsoft Excel

The Dynamic Duo:
VLOOKUP
and the IF function

another
Computer
Mama
Guide

The Dynamic Duo: VLOOKUP and the IF Function

In this lesson you will learn:

1. Create a Lookup Table.

2. Name the Lookup Table.

3. Use a VLOOKUP Table in a Formula.

4. Use Logical Functions: IF
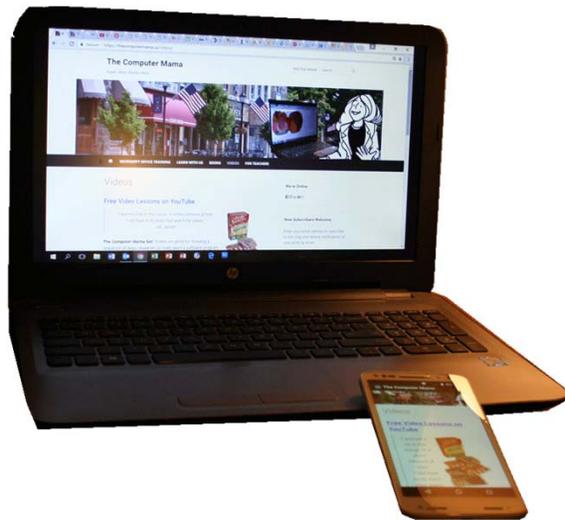
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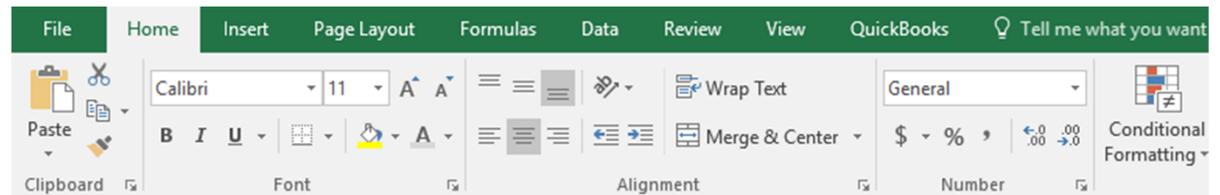
Formulas->Function Library->Lookup & Reference
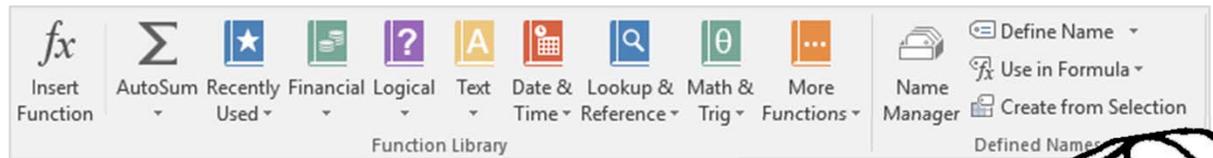
Menu Maps

1. Home-> Styles-> Conditional Formatting

2. Formulas->Defined Names->Define Name

3. Formulas->Function Library->Lookup & Reference->VLOOKUP

4. Formulas->Function Library->Logical->IF
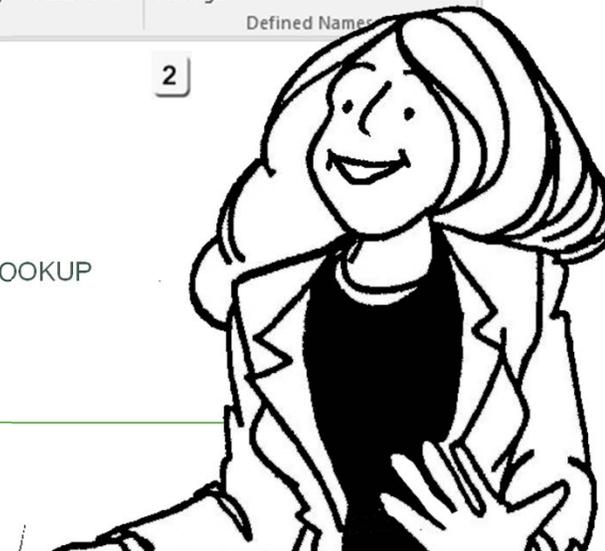
The Dynamic Duo

Microsoft Office is most effective when the tasks are strung together in a sequence. It is how we process our work: many little steps one after the other. Today's lesson presents the Dynamic Duo: VLOOKUP and the Logical Function IF.

The Lookup Function

Say your company offers a bonus for meeting sales goals. The bonus will be calculated as a percent of the sales. The best way to calculate the bonus is to look up the answer in a Table.

Excel calls this the Lookup function. A vertical, or **VLOOKUP** uses the values in the columns. A horizontal, or **HLOOKUP**, uses the data in rows.

Keep going…

This is an example of the completed spreadsheet

	A	B	C	D	E	F	G
1	Sales Rep	Total	Commision	Bonus	Comments	Sales	Percent
2	Alex	$ 3,500.00	5%	$ 175.00	Needs work	$ 2,500.00	5%
3	Connie	$ 8,130.00	15%	$1,219.50	Well done!	$ 5,000.00	10%
4	Elizabeth	$ 8,170.00	15%	$1,225.50	Well done!	$ 7,500.00	15%
5	Nikki	$13,560.00	20%	$2,712.00	Well done!	$10,000.00	20%
6							
7							
8							
9							

C2 = =VLOOKUP(B2,Sales,2)

Exam 77-728 Microsoft Excel 2016 Create Advanced Formulas
3.2 Look up data by using Functions
3.2.1 Look up data by using the VLOOKUP function

The Dynamic Duo: VLOOKUP and the IF Function

Setup the Spreadsheet

Home->Number-> Accounting

1. Try This: Enter the Labels

Select Cell A1 and type: Sales Rep
Select Cell B1 and type: Total

Select Row 1 and Format the Row BOLD.
This is the Header Row. By Definition the
Header Row should be BOLD.

Try This: Format the Numbers

Select Column B.
Go to **Home->Number-> Accounting**.

Keep going…

2

Enter the Data

2. Try This: Enter the Data

Select Cell A2 and type: Alex
Select Cell A3 and type: Connie
Select Cell A4 and type: Elizabeth
Select Cell A5 and type: Nikki

And This: Enter the Numbers

Select Cell B2 and type: 3,500.00
Select Cell B3 and type: 8,310.00
Select Cell B4 and type: 8,170.00
Select Cell B5 and type: 13,560.00

Keep going…

Enter the Data

| File | Home | Insert | Page Layout | Formulas | Data | Review | View | QuickBooks |

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A1 · fx Sales Rep
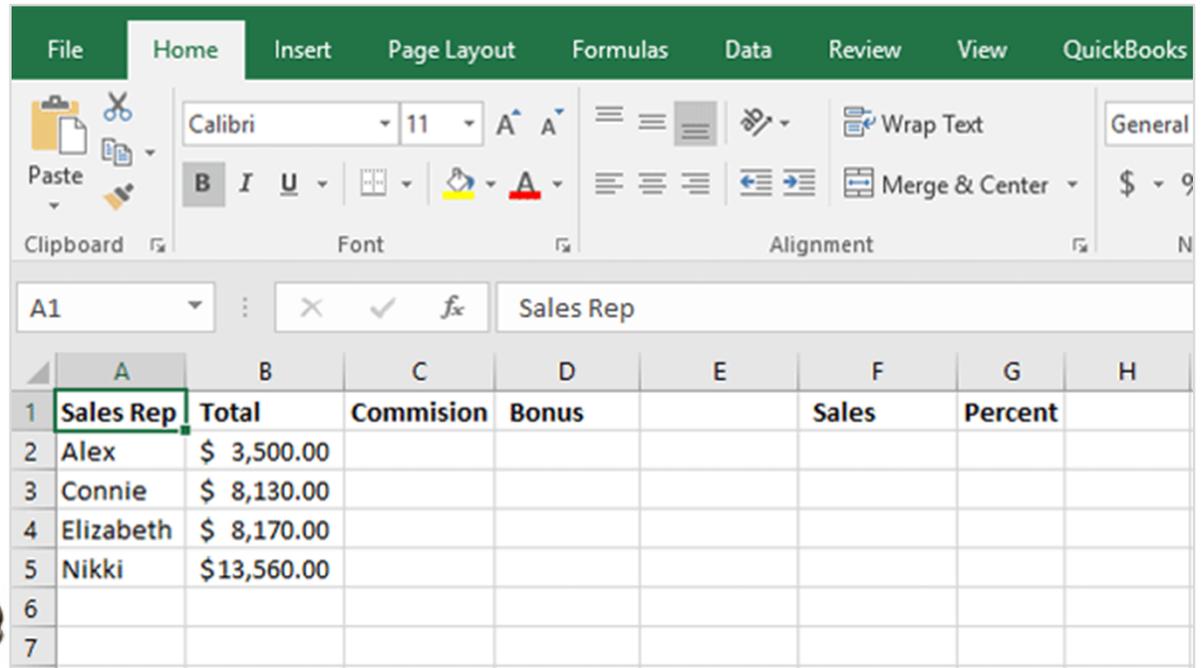
	A	B	C	D	E	F	G	H
1	Sales Rep	Total	Commision	Bonus		Sales	Percent	
2	Alex	$ 3,500.00						
3	Connie	$ 8,130.00						
4	Elizabeth	$ 8,170.00						
5	Nikki	$13,560.00						
6								
7								

Add More to the Spreadsheet

Home-> Number> Percentage

3. Try This: Add the following Labels:
In cell C1, type Commission
In cell D1, type Bonus
In cell F1, type Sales
In cell G1, type Percent

Format the Labels **Bold.**
Format Column F for **Accounting.**
Format Column G for **Percentage.**

Keep going…

4

Create a VLOOKUP Table

Home->Number->Accounting

This Lookup table has two columns: Sales and Percent. Sales, Column F, is formatted for Accounting ($) and Percent, Column G, is formatted for Percentage (%).

4. Try it: Add Data to the table

Enter the following values:

Sales	Percent
$ 2,500.00	5%
$ 5,000.00	10%
$ 7,500.00	15%
$10,000.00	20%

Keep going…

	A	B	C	D	E	F	G	H	I
1	Sales Rep	Total	Commision	Bonus		Sales	Percent		
2	Alex	$ 3,500.00				$ 2,500.00	5%		
3	Connie	$ 8,130.00				$ 5,000.00	10%		
4	Elizabeth	$ 8,170.00				$ 7,500.00	15%		
5	Nikki	$13,560.00				$10,000.00	20%		
6									
7									

5

Name That Tune

In Excel, you can name a cell, or a range of cells. Using names makes it easy to go to a particular place. It also simplifies cell references when you create equations.

5. Try it: Name the Range
Select Cells F1 through G5.
Go to Formula->Defined Names.
Select Define Name.

What Do You See? The New Name screen will pop up. The Name, Sales, came from the label in Cell F1.

Refers to: Shows the name of the spreadsheet, Bonus. The Range of data can be found in cell F1 through G5.

Click OK and continue...

Formulas-> Defined Name> Define Name
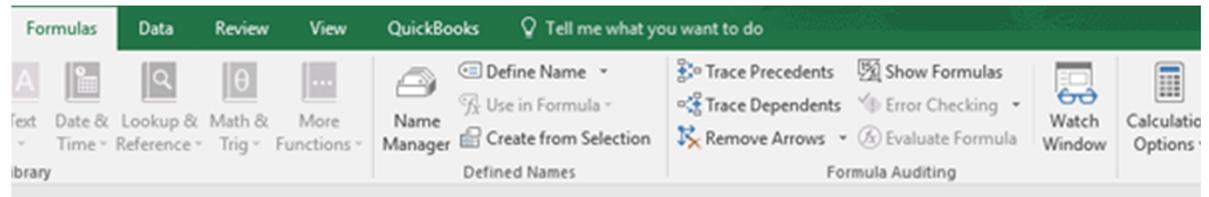
	Sales	Percent
	$ 2,500.00	5%
	$ 5,000.00	10%
	$ 7,500.00	15%
	$10,000.00	20%

New Name ? ✕

Name: Sales

Scope: Workbook

Comment:

Refers to: =Bonus!$F$1:$G$5

OK   Cancel

6

Insert the VLOOKUP Function

Formulas->Function Library->Lookup and Reference->VLOOKUP

6. Try This: Insert a VLOOKUP Function

Select Cell C2.
Go to **Formula -> Function Library.**
Go to **Lookup & Reference.**
Select **VLOOKUP** from the function list.

Please keep going...

Exam 77-728 Microsoft Excel 2016 Create Advanced Formulas
3.2 Look up data by using Functions
3.2.1 Look up data by using the VLOOKUP function

7. What Do You See? Excel will prompt you to fill in the Function Arguments.

Here are some answers.

Lookup_Value: The first argument asks, "Where is the data?" In our example, Alex's total is in cell B2. Click on cell B2.

Table_array: The second argument wants to know, "Where is the lookup table?" You can type the name, sales, for the range or use the red, white and blue lookup button to go to highlight cells F1 through G5.

Col_index_num: The third argument needs to identify where the answers are.

In our two column Sales array, the Percent can be found in Column 2.

Click **OK**.

Formulas->Function Library->Lookup and Reference->VLOOKUP

| C2 | ▾ | : | × | ✓ | *fx* | =VLOOKUP(B2,Sales,2) |

▲	A	B	C	D	E	F	G	H	I	J
1	Sales Rep	Total	Commision	Bonus		Sales	Percent			
2	Alex	$ 3,500.00	2,Sales,2)			$ 2,500.00	5%			
3	Connie	$ 8,130.00				$ 5,000.00	10%			
4	Elizabeth	$ 8,170.								
5	Nikki	$13,560.								

Function Arguments   ?   ✕

VLOOKUP

Lookup_value	B2	🔢	= 3500
Table_array	Sales	🔢	= {"Sales","Percent";2500,0.05;5000,0.1;7
Col_index_num	2	🔢	= 2
Range_lookup		🔢	= logical

= 0.05

Looks for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify. By default, the table must be sorted in an ascending order.

Col_index_num   is the column number in table_array from which the matching value should be returned. The first column of values in the table is column 1.

Formula result = 5%

Help on this function   [OK]   [Cancel]

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3.2 Look up data by using Functions
3.2.1 Look up data by using the VLOOKUP function

The Dynamic Duo: VLOOKUP and the IF Function

8

Hello, VLOOKUP

8. What Do You See? The VLOOKUP formula compared the data in Cell B2 to the Sales Table in F1:G5.. The answer for Percent can be found in Column 2 of the Sales Table.

Prove It: Audit the Formula
Double click C2. The Formula will be displayed.
Click on Sales in the Formula.
Excel will outline the Sales LOOKUP Table.

That will work.

Click **ENTER** on your keyboard to see the answer: 5% instead of the formula.

Formulas->Function Library->Lookup and Reference->VLOOKUP

Exam 77-728 Microsoft Excel 2016 Create Advanced Formulas
3.2 Look up data by using Functions
3.2.1 Look up data by using the VLOOKUP function

Logical Formulas

The previous steps demonstrated how to create, name and use Lookup tables. Another useful set of Functions are the Logical formulas.

A Logical formula is binary. There are only two answers: True/False, Yes/No, Above/Below. It begins with a Logical Test.

Say you wanted to calculate if the goals were met? For example, did sales exceed our goal of 10%? You could use a Logical equation here.

Working with Logical Formulas

1. Try it: Create an IF Function
Select Cell E1 and type: Comments
Select Cell E1 and format the label **BOLD.**

Select Cell E2.
Go to **Formulas->Function Library ->Logical.**
Click on **IF**

Keep going…

Enter the Function Arguments

2. What Do You See? Microsoft Excel will prompt you to fill in the Function Arguments. There are two answers to the Logical test: One if the answer is true, another if the answer is false.

Logical Test: C2>10%
Value_if_true: Well done!
Value_if_false: Needs Work

Memo to Self: Excel will add the "quotes" if you enter Text in the Function Arguments.

Please click **OK**.

Formulas->Function Library ->Logical->IF

Exam 77-727 Excel 2016 Core Perform Operations with Formulas and Functions
4.2 Perform Conditional Operations by using Functions
4.2.1 Perform logical operations by using the IF function

3

Enter the Function Arguments

Formulas->Function Library ->Logical->IF

3. What Do You See? These Comments are based on the data. Most of them say, "Well done!" The data in C2 that is less that ten percent says, "Needs work."

The Logical function looks like this:
=IF(C2>10%, "Well done!", "Needs Work")

Good to Know: If you wish to edit the Function, click on the Fx to the left of the Function in the Formula Bar.

Please keep going….
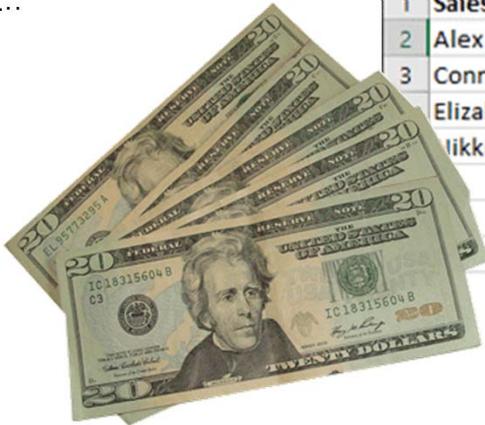
File	Home	Insert	Page Layout	Formulas	Data	Review	View	QuickBooks

Insert Function | AutoSum | Recently Used | Financial | Logical | Text | Date & Time | Lookup & Reference | Math & Trig | More Functions | Name Manager

Function Library | Defined Name

E2   fx   =IF(C2>10%,"Well done!","Needs Work")

▲	A	B	C	D	E	F	G
1	Sales Rep	Total	Commision	Bonus		Comments	Sales	Percent
2	Alex	$ 3,500.00	5%	$	175.00	Needs Work	$ 2,500.00	5%
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	Nikki	$13,560.00	20%	$	2,712.00	Well done!	$10,000.00	20%

Exam 77-727 Excel 2016 Core Perform Operations with Formulas and Functions
4.2 Perform Conditional Operations by using Functions
4.2.1 Perform logical operations by using the IF function

4

Fun with Conditional Formatting

Home->Styles->Conditional Formatting

Microsoft Excel has a library of Conditional Formatting including Data Bars, Color Sets and Icons. Each of these formats is based on Conditional Formulas, or Rules.

You can use **Conditional Formatting** to Highlight the results, based on TEXT:

If the text is Well Done: Green is good
If the text is Needs Work: Yellow means caution

4. Try This: Apply Conditional Formatting

Select Column E.
Go to Home ->Styles.
Go to **Conditional Formatting.**
Click on: **Highlight Cells Rules.**
Select: **Text that Contains…**

 Keep going, you will be prompted...

5

Choose the Formatting

Home->Styles->Conditional Formatting

What Do You See? You will be prompted to enter the Text and select the colors when you select a Text Rule.

5. Try This: Edit the Conditional Formatting

When you are prompted edit the following:
Text: Well done!
Format with: Green Fill with Dark Green Text

OK, Do it Again: Add Another Text Rule
Go to **Home ->Styles->**
Go to **Conditional Formatting.**
Click on: **Highlight Cells Rules.**
Select: **Text that Contains…**

When you are prompted edit the following:
Text: Needs Work
Format with: Yellow Fill with Dark Yellow Text.

Soooo, did it work?

		fx	Comments			
	C	D	E	F	G	H	I
	Commision	Bonus	Comments	Sales	Percent	
	5%	$ 175.00	Needs Work	$ 2,500.00	5%	
	15%	$ 1,219.50	Well done!	$ 5,000.00	10%	
	15%	$ 1,225.50	Well done!	$ 7,500.00	15%	
	20%	$ 2,712.00	Well done!	$10,000.00	20%	

Text That Contains   ?   ✕

Format cells that contain the text:

Well done!   with   Green Fill with Dark Green Text

OK   Cancel

6
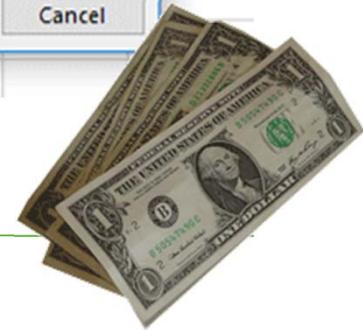
All Together Now

6. What Do You See? We used several Formulas to get this colorful display.

The Sales Table was created in F1:G5.
It has two Columns: Sales ($) and Percent (%)
This Table was Named: Sales

The VLOOKUP Function used the Sales Table to find the right Sales Commission in Column 2.

The IF Logical Function compared theSales Commission we calculated with a VLOOKUP Function. The VLOOKUP function returned one answer if it is True, another if it False.

Finally, **Conditional Formatting** was applied to the Comments.

Soooo, did it work? Yeah. It looks pretty cool.

At work, Conditional Formatting can be applied to data that is shipped late (red!) or parts that are greater than the approved tolerances.

Formulas->Function Library ->Logical->IF

Fx E2 =IF(C2>10%,"Well done!","Needs Work")

	A	B	C	D	E	F	G
1	Sales Rep	Total	Commision	Bonus	Comments	Sales	Percent
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4	Elizabeth	$ 8,170.00	15%	$ 1,225.50	Well done!	$ 7,500.00	15%
5	Nikki	$13,560.00	20%	$ 2,712.00	Well done!	$10,000.00	20%
6							
7							

The Dynamic Duo: VLOOKUP and the IF Function

Summary

This lesson introduced the Dynamic Duo: VLOOKUP and the Logical Function IF.

Can these formulas be used with the other Logical Options: And, Or, Not? Absolutely. But that is new story for another day.

Allez allez in free. You done good.
You get the cookies!

Formulas->Function Library ->Logical->IF

=IF(C2>10%,"Well done!","Needs Work")

	D	E	F	G
	Bonus	**Comments**	**Sales**	**Percent**
	$ 175.00	Needs Work	$ 2,500.00	5%
	$ 1,219.50	Well done!	$ 5,000.00	10%
	$ 1,225.50	Well done!	$ 7,500.00	15%
	$ 2,712.00	Well done!	$10,000.00	20%