Excel 2013: Business Spreadsheets

This Little Piggy Goes to Market

Intermediate Excel Objectives
In this lesson, you will learn how to:

1. Practice modifying cell contents and formats.

2. Use the Paste Special options.

3. CONCATENATE (combine) data with a formula.

4. Modify and format TEXT with formulas.

5. Use DATE and TIME formulas.

6. Use FINANCIAL formulas to calculate a payment.

| HOME | INSERT | PAGE LAYOUT | FORMULAS | DATA | REVIEW |

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

Function Library

=CONCATENATE("Daily Sales for ",B2,": ",D2)

	A	B	C	D	E	F	G
1	Date	Product	Net	Quantity	Revenue	Product Revenue	
2	July 1, 2013	Pigs	$ 3.25	100	$ 325.00	Daily Sales for Pigs: 100	
3	July 2, 2013	Pigs	$ 3.25	105	$ 341.25		
4	July 3, 2013	Pigs	$ 3.25	110	$ 357.50		

Lesson 2: Little Piggy Goes to Market

1. Readings
Read Lesson 2 in your Intermediate Excel Guide, page 51-81.

Project
Use formulas to format and modify TEXT, DATE, and TIME. Use FINANCIAL formulas to calculate a car payment.

Downloads
Legs Eggs Pigs 2013.xlsx
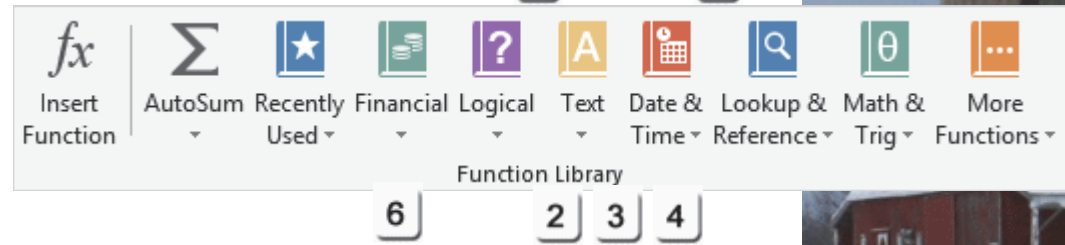Counting Chickens 2013.xlsx
Brown Bag Sales Data 2013.xlsx

2. Practice
There is no Practice Activity for this lesson.

3. Assessment
Review the Test Yourself questions on page 82.

Formulas


Menu Maps

This lesson introduces the Formulas Ribbon.
1. Formulas -> Function Library->Text ->Concatenate, page 62
2. Formulas -> Function Library->Text ->UPPER, page 65
3. Formulas -> Function Library->Text ->SUBSTITUTE, page 67
4. Formulas->Function Library->Date & Time->MONTH, page 69
5. Formulas->Function Library->Date & Time->NETWORKDAYS, page 71
6. Formulas->Function Library->Financial->PMT, page 79
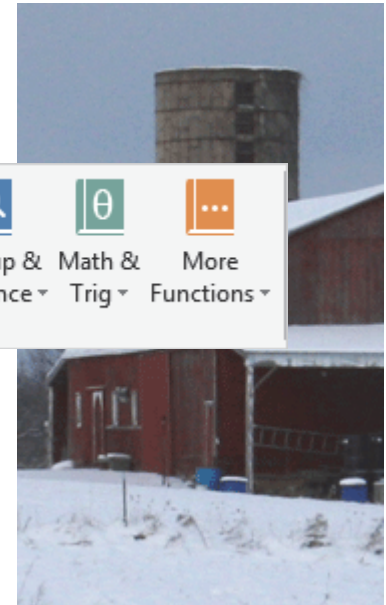
Formulas

In the previous lesson, the focus was on naming the cells that are included in a formula. We looked at the difference between **Relative** and **Absolute Cell References**. This lesson will use formulas to calculate, compare and format Text. We will also use formulas to summarize the data. I know, I know: the mere thought of formulas sends folks out the door. I believe that math is taught very poorly and that most people do NOT have a good understanding of the rules and options. This lesson will include a discussion of the math as well as what the spreadsheet software can do.
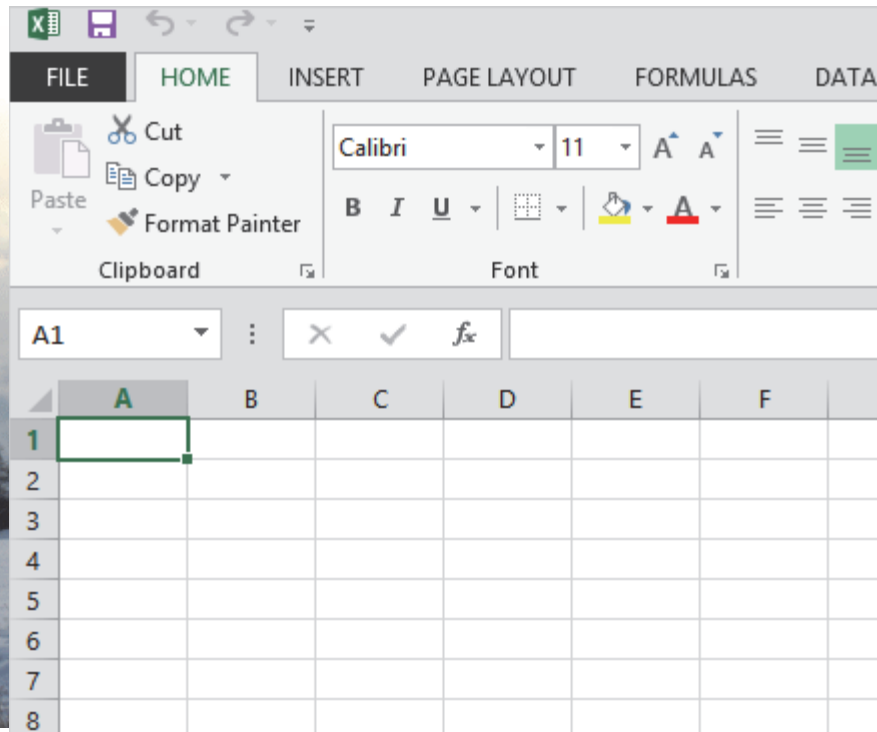
Start Microsoft Excel. When the Welcome screen appears, open a new, blank workbook.

What Do You See from the top of the screen?

Is there a **Home** Ribbon? And the **Insert**, **Page Layout, Formulas, Data. Review and View** Ribbons as well? Yes.

Then you are ready to go.

Before You Begin

This discussion begins by creating a sample spreadsheet that combines all of the dates and product sales forecast from three different spreadsheets. This lesson introduces a common copy/paste error, and methods for correcting it.

1. Try it: Open a Sample Spreadsheet
Open the spreadsheet you created in the previous lesson Legs Eggs Pigs 2013.xlsx
Go to the **Pigs** spreadsheet.
Select Row 5 through Row 28.
(Do not include the Total in Row 29.)
Go to **Home->Clipboard->Copy**.

Go to a new spreadsheet.
Select Cell A1.
Go to **Home->Clipboard->Paste**.
Keep going...!

Memo to Self: You can download and open the sample file or continue with the "Legs Eggs and Pigs" spreadsheet from the previous lesson.

There may be a yellow security banner at the top of the spreadsheet. Click **ENABLE** so you can work on this lesson, please. .

Exam 77-420 Microsoft Excel 2013
2. Create Cells and Ranges
2.1 Insert Data In Cells and Ranges: Copy and Paste Data

Take Two

Paste Between Worksheets

What Do You See? When you copy and paste data into a new spreadsheet, you may see many error messages. That's Excel's way of asking, "Where's the data?"

2. Try This: Review the #REF Errors
Click on any cell that says **#REF!**
You will see that the formulas are still there. This example shows: **D3=D2+$B$3.**

When you paste formulas into a new spreadsheet, the cell references may become meaningless. In this example, there is no **Reference Cell**, $B$3, so there is nowhere to look up the quantity.

3. Try This: Review the #VALUE! Errors
Click on any cell that says **#VALUE!**
You will see that the formulas are still there. This example shows: **E4=C4+D4.**

In this example C4 has Text, not Numbers. How do you multiply Text times Numbers? Hence, the error **#value!**

Keep going, please...

Exam 77-420 Microsoft Excel 2013
2. Create Cells and Ranges
2.1 Insert Data In Cells and Ranges: Copy and Paste Data (Paste Errors)

Intermediate Microsoft Excel 2013   Page 55 of 245

Home->Clipboard->Paste

Paste Errors

4. What Else Do You See? Look next to the **#REF!** message: There is an exclamation point that flags the error. This error has been identified as an **Invalid Cell Reference**.
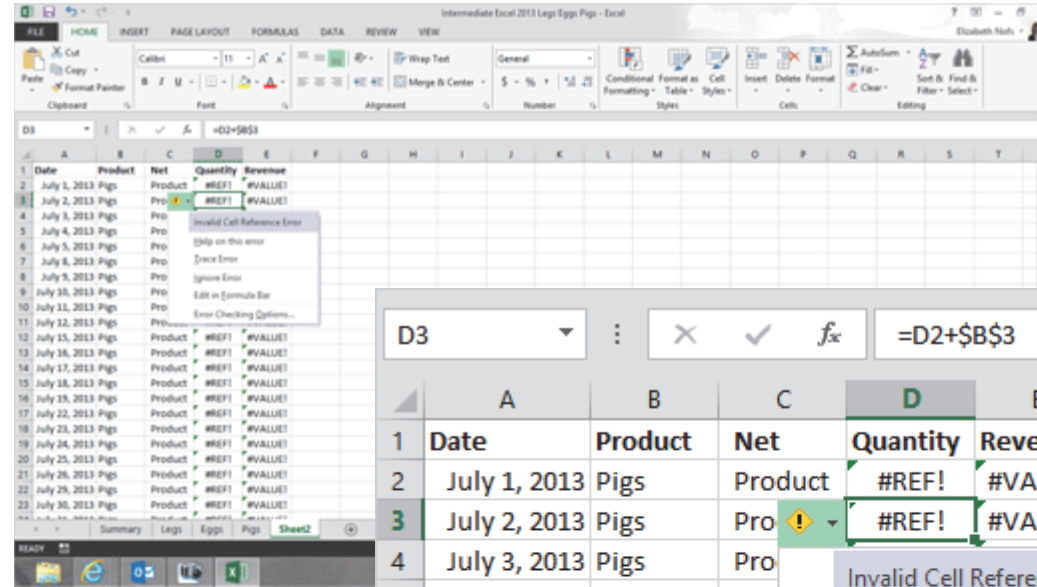
The Error options include:
Help on this error
Trace Error
Ignore Error
Edit in the Formula Bar
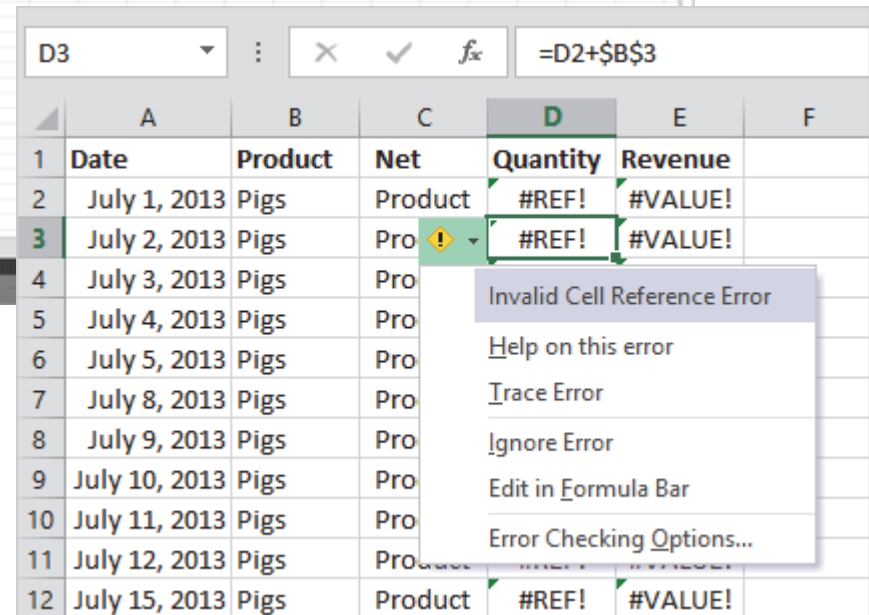Error Checking Options

This **#REF!** error comes from pasting data from one spreadsheet to another, but the new spreadsheet does not include all of the Cells that the formulas **reference**.

Keep going...

4

	D3	▼		×	✓	f_x	=D2+$B$3	

	A	B	C	D	E	F
1	Date	Product	Net	Quantity	Revenue	
2	July 1, 2013	Pigs	Product	#REF!	#VALUE!	
3	July 2, 2013	Pigs	Pro ⚠ ▾	#REF!	#VALUE!	
4	July 3, 2013	Pigs	Pro	Invalid Cell Reference Error		
5	July 4, 2013	Pigs	Pro			
6	July 5, 2013	Pigs	Pro	Help on this error		
7	July 8, 2013	Pigs	Pro	Trace Error		
8	July 9, 2013	Pigs	Pro	Ignore Error		
9	July 10, 2013	Pigs	Pro			
10	July 11, 2013	Pigs	Pro	Edit in Formula Bar		
11	July 12, 2013	Pigs	Product	Error Checking Options...		
12	July 15, 2013	Pigs	Product	#REF!	#VALUE!	

Exam 77-427 Microsoft Excel 2013 EXPERT
1. Manage and Share Workbooks
1.3   Manage Workbook Changes: Identify Errors

Paste Special Options

There is another method of pasting the **Values**, without the formulas.

Before You Begin: Delete the data that you just pasted. We are going to start over.

5. Try it: Paste Special
Go to the **Pigs** spreadsheet.
Select Row 5 through Row 28.
(Do not include the Total in Row 29.)
Go to **Home->Clipboard->Copy.**
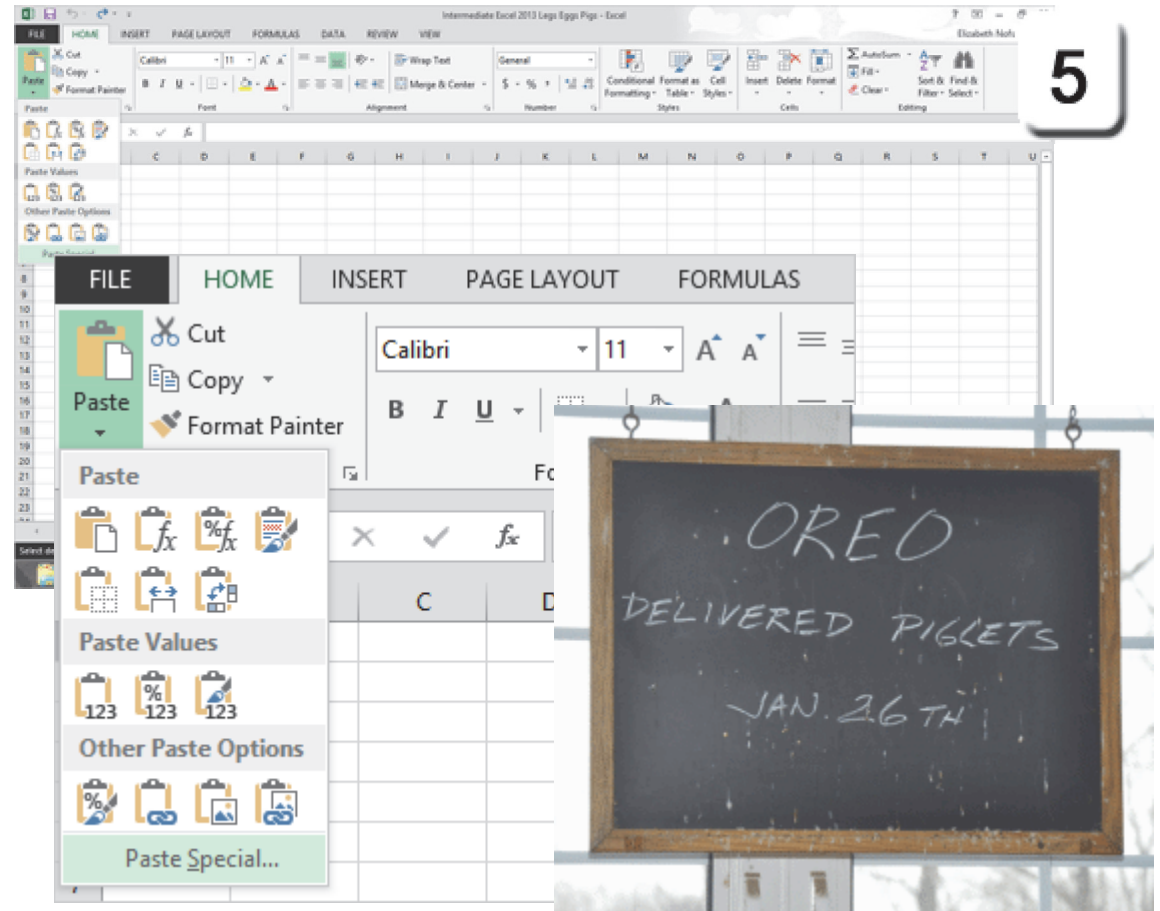
Go to a new spreadsheet, Sheet 2.
Select Cell A1.
Go to **Home->Clipboard->Paste.**
Click on **Paste Special.**

What Do You See? There are four rows of
 Paste Options. You can choose whether to keep the formatting, formulas, or values.

What Else Do You See? The **Other Paste Options** include **Paste Link**, so you can link the data from one workbook or spreadsheet to another and synchronize the data.
Keep going, there's more. ;-)

Take Two

Home->Clipboard->Paste ->Paste Special ->Values and Number Formats

Paste Special

What Do You See? Paste Special lets you choose what you want to paste. The default options include: All (everything), Formulas, Values, Formats, Comments, or Validation, only.

Options to Remove Formatting
Paste Special can get rid of Formats, Themes, Borders or blanks you may have copied from the original sheet.
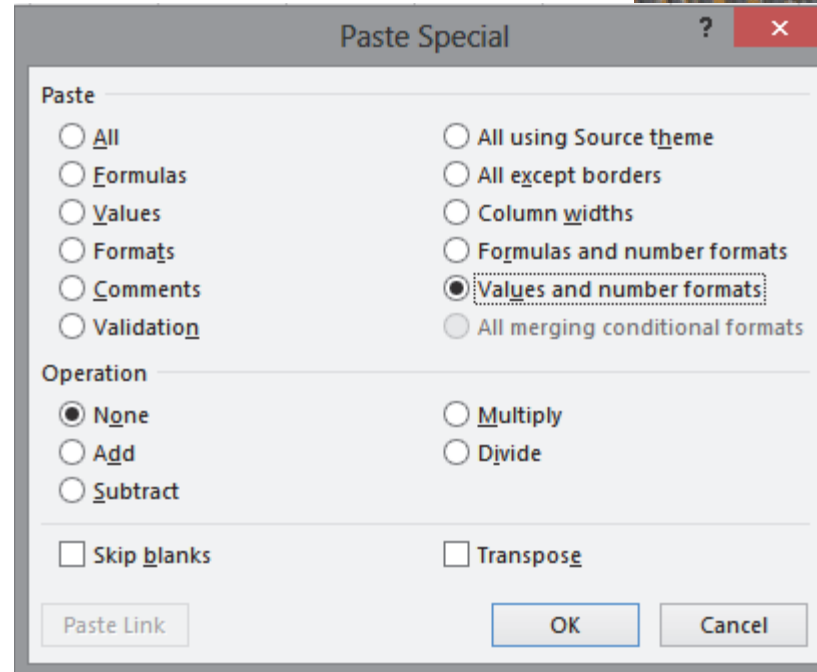
Operation Options
You can select the operation you want to paste: Add, Subtract, Multiply, Divide, or None.

6. OK, Paste Something
Select: **Values and number formats**.
Click **OK**. The Rows of data will be pasted. There should be no errors.

Keep going...

Paste Special   ?   ✕

Paste
- ○ All
- ○ Formulas
- ○ Values
- ○ Formats
- ○ Comments
- ○ Validation

- ○ All using Source theme
- ○ All except borders
- ○ Column widths
- ○ Formulas and number formats
- ● Values and number formats
- ○ All merging conditional formats

Operation
- ● None
- ○ Add
- ○ Subtract

- ○ Multiply
- ○ Divide

- ☐ Skip blanks
- ☐ Transpose

Paste Link   OK   Cancel

6

The Computer Mama sez:
This can save you a lot of time!

Exam 77-420 Microsoft Excel 2013
2. Create Cells and Ranges
2.1 Insert Data In Cells and Ranges: Copy and Paste Data (Paste Special)

Paste Special: Values

7. Try it: Paste the Sample Data
Go to the **Eggs** spreadsheet.
Select Row 2 through Row 24.
(Do not include the Total in Row 25.)
Go to **Home->Clipboard->Copy.**
Go to the new spreadsheet, Sheet 2.
Select Cell A25. Go to **Home->Clipboard->Paste->**
Paste Special->Values and number formats.

Go to the **Legs** spreadsheet.
Select Row 2 through Row 24.
Go to **Home->Clipboard->Copy**.
Go to the new spreadsheet, Sheet 2.
Select Cell A48. Go to **Home->Clipboard->Paste->**
Paste Special->Values and number formats.

Try This, Too: Rename the spreadsheet
Double-click the tab for this spreadsheet. Type:
Original Data for TEXT Formulas.
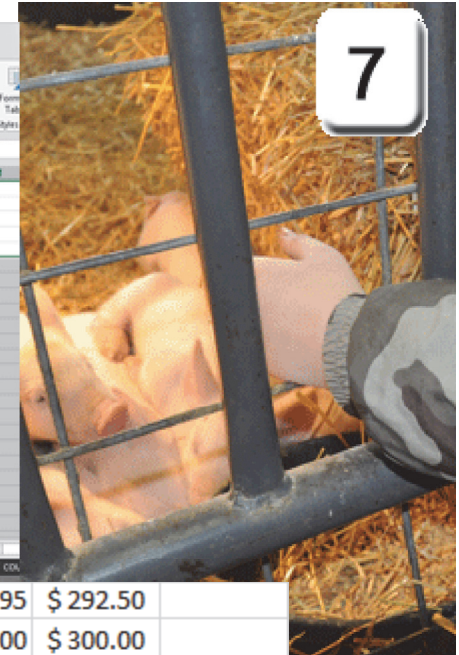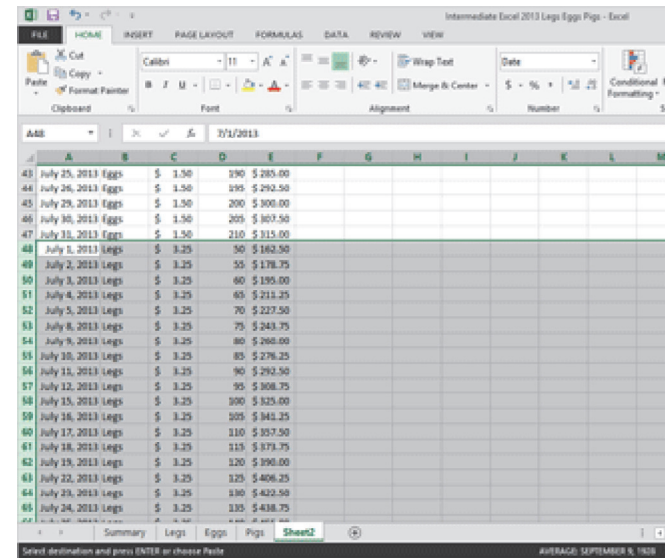
8. Try This: Save the Spreadsheet
Go to **File->Save**.
Go to your **Documents** folder, if you wish.
Type the Name: **Counting Chickens 2013**.
Click on **SAVE**.

44	July 26, 2013	Eggs	$ 1.50	195	$ 292.50
45	July 29, 2013	Eggs	$ 1.50	200	$ 300.00
46	July 30, 2013	Eggs	$ 1.50	205	$ 307.50
47	July 31, 2013	Eggs	$ 1.50	210	$ 315.00
48	July 1, 2013	Legs	$ 3.25	50	$ 162.50
49	July 2, 2013	Legs	$ 3.25	55	$ 178.75
50	July 3, 2013	Legs	$ 3.25	60	$ 195.00
51	July 4, 2013	Legs	$ 3.25	65	$ 211.25

Exam 77-420 Microsoft Excel 2013
2. Create Cells and Ranges
2.1 Insert Data In Cells and Ranges: Copy and Paste Data (Paste Special)

Take
Two

Format TEXT with Formulas

The next lesson demonstrates the TEXT functions. Each example creates a **Cell Reference**, and uses **Arguments** to create the formulas.

The TEXT functions include:
CONCATENATE (combining fields)
UPPER/LOWER
SUBSTITUTE

1. Before You Begin: You can continue with the spreadsheet we have been working on or open the sample file if you wish:
Counting Chickens 2013.xlsx

There should be a spreadsheet called **Original Data for TEXT Formulas**.

Keep going, please...

File->Open

	A	B	C	D	E	F
1	Date	Product	Net	Quantity	Revenue	
2	July 1, 2013	Pigs	$ 3.25	100	$ 325.00	
3	July 2, 2013	Pigs	$ 3.25	105	$ 341.25	
4	July 3, 2013	Pigs	$ 3.25	110	$ 357.50	
5	July 4, 2013	Pigs	$ 3.25	115	$ 373.75	
6	July 5, 2013	Pigs	$ 3.25	120	$ 390.00	
7	July 8, 2013	Pigs	$ 3.25	125	$ 406.25	
8	July 9, 2013	Pigs	$ 3.25	130	$ 422.50	
9	July 10, 2013	Pigs	$ 3.25	135	$ 438.75	

Take Two

Text Formulas

Text as well as numbers can be edited by formulas. One useful Text function combines the data from several cells.

This function also has a cool name: **Concatenate**.

2. Try This: Make a Copy
Select the Original Data sheet.
Right click and make a **Copy**.
Name the new sheet: Text Functions.

And Try This: Add a Label
Select Cell F1.
Type: Product Revenue

Keep going....

12	July 15, 2013	Pigs	$ 3.25	150	$ 487.50
13	July 16, 2013	Pigs	$ 3.25	155	$ 503.75
14	July 17, 2013	Pigs	$ 3.25	160	$ 520.00
15	July 18, 2013	Pigs	$ 3.25	165	$ 536.25
16	July 19, 2013	Pigs	$ 3.25	170	$ 552.50
17	July 22, 2013	Pigs	$ 3.25	175	$ 568.75
18	July 23, 2013	Pigs	$ 3.25	180	$ 585.00
19	July 24, 2013	Pigs	$ 3.25	185	$ 601.25
20	July 25, 2013	Pigs	$ 3.25	190	$ 617.50
21	July 26, 2013	Pigs	$ 3.25	195	$ 633.75
22	July 29, 2013	Pigs	$ 3.25	200	$ 650.00
23	July 30, 2013	Pigs	$ 3.25	205	$ 666.25
24	July 31, 2013	Pigs	$ 3.25	210	$ 682.50

Insert...
Delete
Rename
Move or Copy...
View Code
Protect Sheet...
Tab Color
Hide
Unhide...
Select All Sheets

Summary | Legs | Eggs | Pigs | **Original Data for TEXT Formulas**

Exam 77-420 Microsoft Excel 2013
1. Create and Manage Worksheets and Workbooks
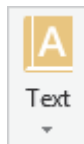1.1 Create Worksheets and Workbooks: Copy and Move Worksheets

Take Two

Text Function: Concatenate

3. Try It: Concatenate the Text
Select **Cell F2.**
Go to **Formulas->Function Library-> Text.**
Click on: **Concatenate.**

A
Text

Keep going...

	FILE	HOME	INSERT	PAGE LAYOUT	FORMULAS	DATA	REVIEW

fx
Insert Function

Σ
AutoSum

⭐
Recently Used

💰
Financial

❓
Logical

A
Text

📅
Date & Time

🔍
Lookup & Reference

θ
Math & Trig

⋯
More Functions

Function

BAHTTEXT

CHAR

CLEAN

CODE

CONCATENATE

DOLLAR

EXACT

FIND

	A	B	C			G
1	Date	Product	Net	Qua	evenue	
2	July 1, 2013	Pigs	$ 3.25			
3	July 2, 2013	Pigs	$ 3.25			
4	July 3, 2013	Pigs	$ 3.25			
5	July 4, 2013	Pigs	$ 3.25			

F2

Exam 77-420 Microsoft Excel 2013
4. Apply Formulas and Functions
4.4 Format and Modify Text with Functions: CONCATENATE

Text Formula Options

This formula combines two cells: B2, the name of the Product, with E2, the calculated revenue.

4. Try It: Edit the Text Function
Start by entering the cell references.

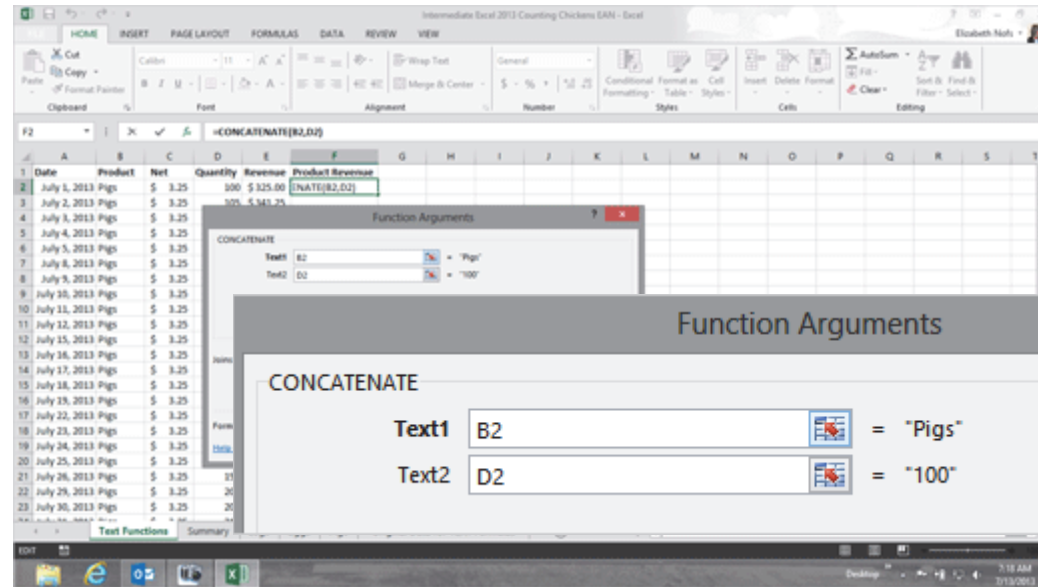Edit Text1: B2
Edit Text2: D2

Click **OK** to CLOSE the Function Arguments.

What Do You See? The formula is =CONCATENATE(B2,D2)

This TEXT formula did, indeed, combine the fields. However, this result needs some improvements.

Keep going...

4

Function Arguments

CONCATENATE

| Text1 | B2 | | = "Pigs" |
| Text2 | D2 | | = "100" |

F2		⋮	✕	✓	*fx*	=CONCATENATE(B2,D2)

◢	A	B	C	D	E	F
1	Date	Product	Net	Quantity	Revenue	Product Revenue
2	July 1, 2013	Pigs	$ 3.25	100	$ 325.00	Pigs100
3	July 2, 2013	Pigs	$ 3.25	105	$ 341.25	
4	July 3, 2013	Pigs	$ 3.25	110	$ 357.50	

Exam 77-420 Microsoft Excel 2013
4. Apply Formulas and Functions
4.4 Format and Modify Text with Functions: CONCATENATE

Take Two

Additional Text Fields

If you add additional Text fields, you can include labels and punctuation if you wish.

5. Try This: Use Additional Text Fields
Select **Cell F2** and delete the formula.
Select **Cell F2**, again.
Go to **Formulas -> Function Library-> Text**.
Click on **Concatenate.**
Edit Text1: "Daily Sales for "
Edit Text2: B2
Edit Text 3: ": "
Edit Text 4: D2
Click **OK**.

Try This, Too: AutoFill the Formula
Select Cell F2.
AutoFill Cell F2 to the bottom of Column F.

What Do You See? Does your formula include the additional Text fields in the Concatenation?

Memo to Self: Whatever you type between the quotes will be displayed as text between the Concatenated Cells. If you need a space between the ": " colon and the number, then add a space to Text3 between the quotes.

F2			✕	✓	*fx*	=CONCATENATE("Daily Sales for ",B2,": ",D2)	
	A	**B**	**C**	**D**	**E**	**F**	**G**
1	Date	Product	Net	Quantity	Revenue	Product Revenue	
2	July 1, 2013	Pigs	$ 3.25	100	$ 325.00	Daily Sales for Pigs: 100	
3	July 2, 2013	Pigs	$ 3.25	105	$ 341.25		
4	July 3, 2013	Pigs	$ 3.25	110	$ 357.50		

Exam 77-420 Microsoft Excel 2013
4. Apply Formulas and Functions
4.4 Format and Modify Text with Functions: CONCATENATE

TEXT Functions: UPPER

Look at the text in any spreadsheet. The data entry may not be consistent. Some people never use capital letters, and some folks make every word begin with a capital letter.

You can create a formula that formats the Text: **UPPER, LOWER, PROPER**.

1. Try It: Add a Label
Go to the Text Functions spreadsheet.
Select **Cell G1**.
Type the label: UPPER

2. Try It: Use the UPPER Text Function
Select **Cell G2**.
Go to **Formulas->Function Library-> Text.**
Click on **UPPER**.

Keep going, please.

Take Two

1

2

Take
Two

UPPER Text Arguments

3. Try This: Edit the Function Arguments
Edit the Text:B2.

You should see a preview of the data in all capital letters, "PIGS".
Click **OK**.

Try This, Too: AutoFill the Formula
Use the **AutoFill** handle to fill down this formula in Column G.

Memo to Self: The **LOWER** text function converts the text to all lowercase letters.

The **PROPER** Text function begins each word with a capital letter.

Formulas -> Function Library-> Text ->UPPER

Function Arguments

UPPER

Text   B2   = "Pigs"

= "PIGS"

Converts a text string to all uppercase letters.

3

	A	B	C	D	E	F	G
1	Date	Product	Net	Quantity	Revenue	Product Revenue	Upper
2	July 1, 2013	Pigs	$ 3.25	100	$ 325.00	Daily Sales for Pigs: 100	PIGS
3	July 2, 2013	Pigs	$ 3.25	105	$ 341.25	Daily Sales for Pigs: 105	PIGS

G2 ... ✗ ✓ *fx* =UPPER(B2)

Exam 77-420 Microsoft Excel 2013
4. Apply Formulas and Functions
4.4 Format and Modify Text with Functions: UPPER

Text Functions: SUBSTITUTE

The **Substitute** Text function can find and edit specific words or phrases.

For example, you can compare the formula in Column F and **Substitute** "New Product Sales" for "Daily Sales."

1. Try This: Add a Label
Go to the Text Functions sheet.
Select **Cell H1.**
Type the following label: Substitute

2. Try This, Too: Substitute the Text
Select **Cell H2**.
Go to **Formulas->Function Library-> Text**.
Click on: **SUBSTITUTE**.

Keep going...

SUBSTITUTE Arguments

3. Try This: Enter the Arguments
Text: F2

Old_text: "Daily Sales"
Microsoft Excel will compare the text in your cell, F2. and determine if your data matches this Old_text.

New_text: "New Product Sales for"
This is the text that Microsoft Excel will substitute when it finds a word or phrase that matches.

You should see a preview of the data to the right of the Argument.

Click **OK**.

Try This, Too: AutoFill the Formula
Use the **AutoFill** handle to fill down this formula in Column H.
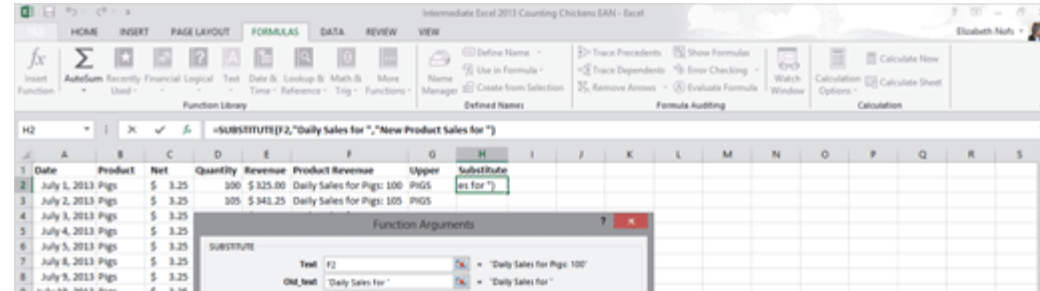
SUBSTITUTE

Text	F2	=	"Daily Sales for Pigs: 100"
Old_text	"Daily Sales for "	=	"Daily Sales for "
New_text	"New Product Sales for "	=	"New Product Sales for "
Instance_num		=	text
		=	"New Product Sales for Pigs: 100"

Replaces existing text with new text in a text string.

=SUBSTITUTE(F2,"Daily Sales for ","New Product Sales for ")

D	E	F	G	H
Quantity	**Revenue**	**Product Revenue**	**Upper**	**Substitute**
100	$ 325.00	Daily Sales for Pigs: 100	PIGS	New Product Sales for Pigs: 100
105	$ 341.25	Daily Sales for Pigs: 105	PIGS	New Product Sales for Pigs: 105
110	$ 357.50	Daily Sales for Pigs: 110	PIGS	New Product Sales for Pigs: 110

Exam 77-420 Microsoft Excel 2013
4. Apply Formulas and Functions
4.4 Format and Modify Text with Functions: SUBSTITUTE

Take Two

Date Functions: MONTH

Businesses are "date driven." Bills need to be paid on time. The **DATE** functions can be used to format as well as calculate.

Before You Begin: Make a Copy
Select the Original Data sheet.
Right click and make a **Copy**.
Name the new sheet: Date Functions.

1. Try This: Add a Label
Go to the Date Functions sheet.
Select **Cell F1**.
Type the following label: Date: Month

2. Try This, Too: Use a Date Function
Select **Cell F2**.
Go to **Formulas->Function Library-> Date & Time**.
Click on: **MONTH.**

Date & Time ▾

Keep going...

D	E	F	G
Quantity	Revenue	Date: Month	
100	$325.00		
105	$341.25		
110	$357.50		

FORMULAS   DATA   REVIEW

Date & Time ▾   Lookup & Reference ▾   Math & Trig ▾   More Functions ▾

EDATE
EOMONTH
HOUR
ISOWEEKNUM
MINUTE
MONTH
NETWORKDAYS

Exam 77-427 Microsoft Excel 2013 EXPERT
3. Create Advanced Formulas
3.3 Apply Advanced Date and Time Functions: Use Functions to Serialize Dates and Times (Month)

Formulas->Function Library-> Date & Time->MONTH

The MONTH Arguments

The purpose of the MONTH function is to read the date, figure out which month it is, and return a number for the month. In this example, the date is the Column A.

**3. Try it: Edit the Serial_Number**
Edit the Serial_Number: A2.

You should see a preview of the data to the right of the Arguments.
Click **OK.**

4. Try This, Too: AutoFill the Formula
Use the **AutoFill** handle to fill down this formula in Column F.

July is the 7th month in the year, as shown.

OK, that's an example of the MONTH function. Excel can also use Date functions with days.

MONTH

Serial_number A2 = 41456

= 7

Returns the month, a number from 1 (January) to 12 (December).

Serial_number is a number in the date-time code used by Microsoft Excel.

	A	B	C	D	E	F	G
						F2 =MONTH(A2)	
1	Date	Product	Net	Quantity	Revenue	Date: Month	
2	July 1, 2013	Pigs	$3.25	100	$325.00	7	
3	July 2, 2013	Pigs	$3.25	105	$341.25	7	
4	July 3, 2013	Pigs	$3.25	110	$357.50	7	

Exam 77-427 Microsoft Excel 2013 EXPERT
3. Create Advanced Formulas
3.3 Apply Advanced Date and Time Functions: Use Functions to Serialize Dates and Times (Month)

Calculating the Date

Many businesses need to calculate the difference between the current date and the date on the transaction. Microsoft Excel has several functions for working with Dates.

Let's consider **Date**, **Today,** and **Now**. Today() and Now() both enter the date. The **Today()** function updates automatically to show the current the current date and time. The **Now()** function does not update automatically. These two functions do not have any Arguments. **Date** lets you enter the Arguments for Year, Month and Day.

1. Before Your Begin: Make a Reference Date
Select Cell G1 and type: Reference Date
Select Cell G2.
Go to **Formulas->Function Library->Date & Time->Date.**
Enter the Function Arguments:
Year: 2013
Month: 8
Day:1
Click **OK** to close the Function Arguments.

Do This, Too: Copy and Paste Cell G2 to G70
(all of the Rows in this example) Keep going...

Memo to Self: Columns C, D and E are hidden in this lesson so that you can see the date in Column A and the Reference Date in Column G.
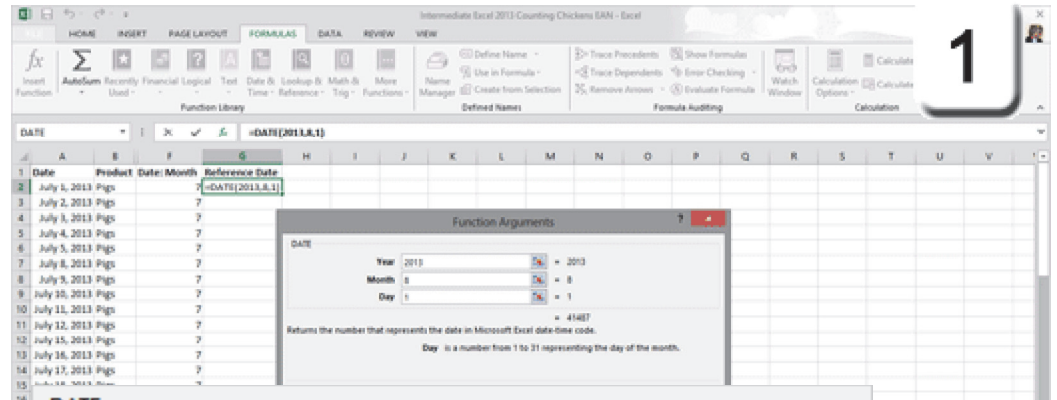
DATE

Year	2013		= 2013
Month	8		= 8
Day	1		= 1
			= 41487

Returns the number that represents the date in Microsoft Excel date-time code.

Exam 77-427 Microsoft Excel 2013 EXPERT
3. Create Advanced Formulas
3.3 Apply Advanced Date and Time Functions: Use Functions to Serialize Dates and Times (NETWORKDAYS)

Take Two

Date Functions: NETWORKDAYS

The **NETWORKDAYS** Function will calculate the number of work days (Monday through Friday) from the Reference Date in Column G to the Date in Column A.

2 Try This: Add a Label
We are still on the Date Functions sheet.
Select Cell H1.
Type the following label: Net Work Days

3. Try This, Too: Use a Date Function
Select **Cell H2.**
Go to **Formulas->Function Library-> Date & Time.**
Click on: **NETWORKDAYS**.

Keep going...

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NETWORKDAYS Arguments

4. Try it: Edit the NETWORKDAYS
Edit the Start_Date: A2.
Edit the End_Date:G2

You should see a preview of the data to the right of the Arguments.
Click **OK.**

5. Try This, Too: AutoFill the Formula
Use the **AutoFill** handle to fill down this formula in Column H.

Memo to Self: The date that is displayed in the Preview is a SERIAL NUMBER. After you edit the Arguments, the work days will be displayed as a whole number.

4

NETWORKDAYS

Start_date	A2	=	41456
End_date	G2	=	41487
Holidays		=	any
		=	24

Returns the number of whole workdays between two dates.

Start_date   is a serial date number that represents the start date.

5

H2   =NETWORKDAYS(A2,G2)

	A	B	F	G	H
1	Date	Product	Date: Month	Reference Date	NETWORKDAYS
2	July 1, 2013	Pigs	7	1-Aug-13	24
3	July 2, 2013	Pigs	7	1-Aug-13	23
4	July 3, 2013	Pigs	7	1-Aug-13	22

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Time Functions

How many hours or minutes are there between the Start Time and the End Time? Here are the steps to figure it out.

1. Before You Begin: Enter the Data
Select Cell J1 and type: Start Time.
Select Cell K1 and type: End Time.
Select Cell L1 and type: Duration.
Format Cells J1, K1 and L1 **BOLD**.

Select Columns J and K.
Go to **Home->Number->Number Format.**
Select the **Time** format.
Select Cell J2 and type: 8:30 AM
Select Cell K2 and type: 5:00 PM

2. Copy the Data
Copy and Paste Cell J2 to J70
Copy and Paste Cell K2 to K70
(all of the Rows in this example)

What Do You See?
The Cells in Column J have: 8:30:00 AM.
The Cells in Column K have: 5:00:00 PM
OK, keep going...

I	J	K	L	M
	Start Time	End Time	Duration	
	8:30:00 AM	5:00:00 PM		
	8:30:00 AM	5:00:00 PM		
	8:30:00 AM	5:00:00 PM		
	8:30:00 AM	5:00:00 PM		

Exam 77-427 Microsoft Excel 2013 EXPERT
3. Create Advanced Formulas
3.3 Apply Advanced Date and Time Functions: Calculate Duration

Calculate the Duration

Duration is the number of hours, minutes and seconds from the Start Time to the End Time.

3. Try it: Calculate the Duration
Select Cell L2 and type:=K2-J2,
Where K2 is the End Time and J2 is the Start Time.

Please **AutoFill** this formula from L2:L70.
(all of the Rows in this example)

4. What Do You See? The formula and the answer are correct. However, the formatting--8:30:00 AM--is confusing.

Keep going...
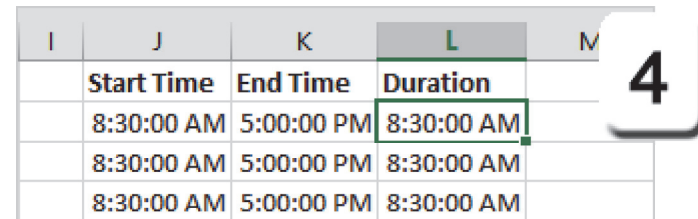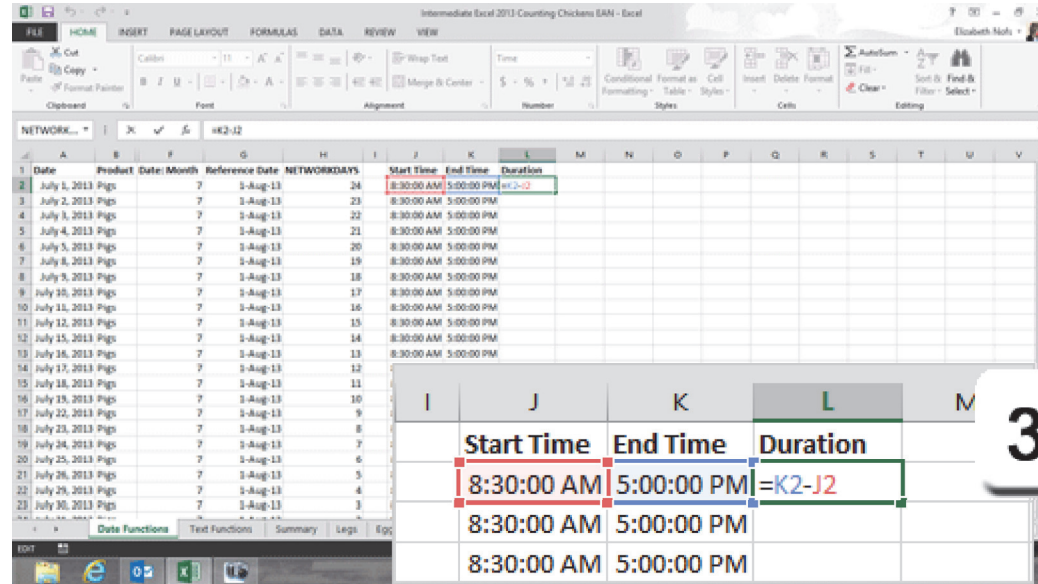
I	J	K	L	M
	Start Time	**End Time**	**Duration**	
	8:30:00 AM	5:00:00 PM	=K2-J2	3
	8:30:00 AM	5:00:00 PM		
	8:30:00 AM	5:00:00 PM		

I	J	K	L	M
	Start Time	**End Time**	**Duration**	
	8:30:00 AM	5:00:00 PM	8:30:00 AM	4
	8:30:00 AM	5:00:00 PM	8:30:00 AM	
	8:30:00 AM	5:00:00 PM	8:30:00 AM	

Exam 77-427 Microsoft Excel 2013 EXPERT
3. Create Advanced Formulas
3.3 Apply Advanced Date and Time Functions: Calculate Duration

Take Two

Format the Time

5. Try it: Format the Time
Select Column L.
Go to **Home->Number->Number Format**.
(the little arrow in the bottom right corner)

Custom

$ - % ,   .0 .00
.00 .0

Number

Go to the **Number** Tab.
Select the **Custom Category**.
Choose: h:mm

6. What Do You See? The Duration will be
formatted as Hours and Minutes.
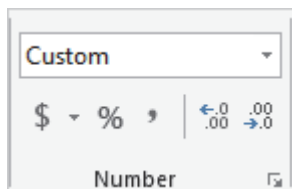
Save Your Spreadsheet.
Very good.

Format Cells

| Number | Alignment | Font | Border | Fill | Protection |

Category:

General
Number
Currency
Accounting
Date
Time
Percentage
Fraction
Scientific
Text
Special
Custom

Sample

Duration

Type:

h:mm

h:mm:ss AM/PM
h:mm
h:mm:ss
m/d/yyyy h:mm
mm:ss
mm:ss.0
@

5

I	J	K	L	M
	Start Time	End Time	Duration	
	8:30:00 AM	5:00:00 PM	8:30	
	8:30:00 AM	5:00:00 PM	8:30	
	8:30:00 AM	5:00:00 PM	8:30	

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Exam 77-427 Microsoft Excel 2013 EXPERT
2. Apply Custom Formats and Layouts
2.1 Apply Custom Data Formats: Create Custom Formats (Number, Time, Date)

Financial Functions

Microsoft Excel has a robust library of **Financial Functions**. Let's say that our little company, Charlotte's Website, needs a car. How would you calculate the car payments?
Here are the steps.

1. Before You Begin: Enter the Labels
Open a new, blank spreadsheet.
Select Cell A1 and type: Present Value
Select Cell A2 and type: Number of Payments
Select Cell A3 and type: Interest Rate
Select Cell A4 and type: Payment

If these are labels, and they are, they should be selected and formatted BOLD.

Keep going...

Exam 77-427 Microsoft Excel 2013 EXPERT
3. Create Advanced Formulas
3.4 Create Scenarios: Use Financial Functions

Take Two

Enter and Format the Data

2. Try it: Enter the Data
Select Cell B1 and type: 20000
Go to **Home->Number->Number Format.**
Select **Accounting.**
This is the **Present Value** of the car. **(Pv)**

Select Cell B2 and type: 36
This is the number of payment periods. (**Nper**)

Select Cell B3 and type: .04
Go to **Home->Number->Number Format.**
Select **Percent Style.**
This is the **Interest Rate** for the loan. (**Rate)**

Keep going...

Home->Number->Number Format

	A	B	C	D	E
1	Present Value	$20,000.00			
2	Number of Payments	36			
3	Interest Rate	4%			
4	Payment				
5					

Exam 77-420 Microsoft Excel 2013
2. Create Cells and Ranges
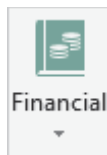**2.2 Format Cells and Ranges: Apply Number Formats**

Take Two

Financial Function: PMT

3. Try it: Use a Financial Function
Select Cell B4.
Go to **Formulas->Function Library.**
Go to **Financial.** Click on **PMT**.

Financial

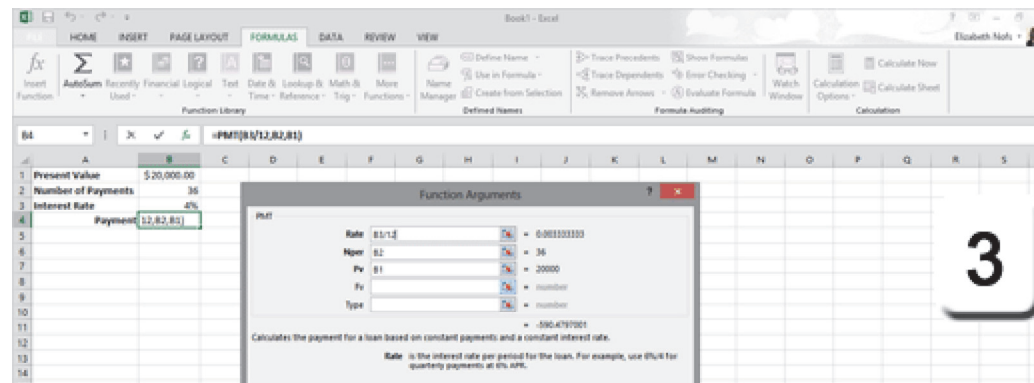When you see the Function Arguments:
Edit the **Rate**: B3/12
Edit the **Nper**: B2
Edit the **Pv**: B1
Keep going, please...

Memo to Self: The Yearly Rate is divided by 12 to get the Monthly Rate

Formulas-> Function Library-> Financial-> PMT

Function Arguments

PMT

Rate	B3/12	= 0.003333333
Nper	B2	= 36
Pv	B1	= 20000
Fv		= number
Type		= number

= -590.4797001

Calculates the payment for a loan based on constant payments and a constant interest rate.

Rate   is the interest rate per period for the loan. For example, use 6%/4 for quarterly payments at 6% APR.

Exam 77-428 Microsoft Excel 2013 EXPERT
3. Create Advanced Formulas
3.4 Create Scenarios: Use Financial Functions

Take Two

PMT Arguments

4. What Do You See? In the example on this page, the payment on a $20,000 car would be $590.48 per month for 36 months.

What Else Do You See? A payment is a negative number: that means money is taken away from your bank account.

Very well, that was a simple example of a financial formula. Microsoft Excel has many formulas for calculating the value of investments, Tbills, price, rate and yield.

OK, **Save** your work.

B4	⋮	✕	✓	ƒx	=PMT(B3/12,B2,B1)

	A	B	C	D	E
1	Present Value	$20,000.00			
2	Number of Payments	36			
3	Interest Rate	4%			
4	Payment	($590.48)			
5					

Exam 77-428 Microsoft Excel 2013 EXPERT
3. Create Advanced Formulas
3.4 Create Scenarios: Use Financial Functions

Summary

The purpose of the exercise was to use formulas, formulas, formulas. The lesson began with formulas that worked with TEXT: formatting text, combining text, and manipulating text.

We also looked at formulas that work with DATE and TIME.

The last pages demonstrated a very simple FINANCIAL formula.

Allez Allez in Free.
You done good. You get the cookie.

	Start Time	End Time	Duration	
	8:30:00 AM	5:00:00 PM	8:30:00 AM	
	8:30:00 AM	5:00:00 PM	8:30:00 AM	
	8:30:00 AM	5:00:00 PM	8:30:00 AM	

F2 =CONCATENATE("Daily Sales for ",B2,": ",D2)

	A	B	C	D	E	F	G
1	Date	Product	Net	Quantity	Revenue	Product Revenue	
2	July 1, 2013	Pigs	$ 3.25	100	$ 325.00	Daily Sales for Pigs: 100	
3	July 2, 2013	Pigs	$ 3.25	105	$ 341.25		
4	July 3, 2013	Pigs	$ 3.25	110	$ 357.50		

B4 =PMT(B3/12,B2,B1)

	A	B	C	D	E
1	Present Value	$ 20,000.00			
2	Number of Payments	36			
3	Interest Rate	4%			
4	Payment	($590.48)			
5					

Practice Activities

Lesson 2: Piggy Goes to Market
Before You Begin: Download the sample file:
Brown Bag Sales Data 2013.xlsx

Try This: Do the following steps

1. Open the sample: Brown Bag Sales Data 2013.xlsx

2. Select Column E: Sort by Date.

3. Select Cell H1 and enter the label: UPPER

4. Select Cell H2 and create a Text Function that references Cell B2 and formats the Text as UPPER.

5. AutoFill the TEXT Function from H2:H69

6. Select Cell I1 and enter the label: CONCATENATE
7. Select Cell I2 and create a Text Function that combines Cell B2 and Cell D2.
Hint: You can use Row 2 to add the following ": "
8. AutoFill the TEXT Function from I2:I69.
9. Save this as YOUR NAME Piggy Practice.

Test Yourself

1. Which of the following are Paste Special Options?
(Select all correct answers.)
a. Values
b. Formulas
c. Formats
d. Paste All
Tip: Intermediate Excel, page 58

2. What does the Concatenate command do?
a. Combines the values of the selected cells
b. Concentrates and compresses the data
c. Filters the data
Tip: Intermediate Excel, page 62

3. Which command changes the formatting so each word starts with an upper case letter?
a. Upper
b. Change Case
c. Proper
d. Sentence Case
Tip: Intermediate Excel, p 65

4. Which of the following are text functions?
(Select all correct answers)
a. Upper
b. Substitute
c. Concatenate
d. Sum
Tip: Intermediate Excel, page 60-68

5. Excel can calculate the number of workdays between two given dates.
a. True
b. False
Tip: Intermediate Excel, page 72
6. Excel can calculate the amount of time elapsed.
a. True
b. False
Tip: Intermediate Excel, page 75

7. Which is the correct command for calculating payments on a car?
a. Formulas-> Calculate-> Car Payment
b. Formulas-> Financial-> Car Payment
c. Formulas->Function Library Financial-> PMT
Tip: Intermediate Excel, page 79