

Proicere, Inc.

MS Excel: Advanced Functions

Lesson Notes

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Round Function

=ROUND(cell, number of digits to round)

i.e. cell D2 = 45.256

=round(d2,1) would return 45.3

=round(d2,2) would return 45.26

=round(d2,-1) would return 50

=round(d2,-2) would return 0

Using the format of a number to round only changes it for display and printing it does not change it for calculations.

	A
1	100
2	0.123456
3	=+A1*A2

	A
1	\$ 100.00
2	0.123456
3	\$ 12.35

	A
1	\$ 100.00
2	12%
3	\$ 12.35

To round a number for calculations, use the round function.

	A	B
1	\$ 100.00	
2	12%	
3	=A1*ROUND(A2,2)	

	A
1	\$ 100.00
2	12%
3	\$ 12.00

Payment Function

=PMT(interest rate,total number of payments,principal,future value,type)

Type is a 0 or 1 indicating when the payment is due.

0 or omitted = At the end of the period

1 = At the beginning of the period

Future value and type are optional arguments.

Note: be sure interest for year is divided by 12

Note: PMT function should be preceded by a minus to display a positive number.

	A	B	C	D	E
1	Mortgage Loan Analysis			Payments	
2	Down Payment			=-PMT(B3/12,B4,B5)	
3	Interest Rate	9.50%			
4	Term (months)	360			
5	Loan Amount	\$80,000.00			

Countif Function

The countif function will count how many cells within a range meet the criteria or test.

COUNTIF(range,criteria)

Range = range to check

Criteria = test

	A	B	C	D	E	F	G	H	I
3	Salesman	Date	type	value		Salesman	Number of cars		
4	jim	7/1/99	merc	15100		Jim	=COUNTIF(A4:A17,F4)		
5	larry	7/1/99	ford	28000		Larry	2		
6	debbie	7/1/99	chev	18250		Debbie	5		
7	jim	7/1/99	merc	7150		Bob	3		
8	jim	7/3/99	merc	15750					
9	larry	7/3/99	honda	12500					
10	debbie	7/3/99	merc	16300					
11	debbie	7/5/99	honda	1950					
12	debbie	7/6/99	ford	13750					
13	bob	7/6/99	chev	14700					
14	jim	7/9/99	chev	11350					
15	debbie	7/10/99	honda	20500					
16	bob	7/10/99	saturn	12750					
17	bob	7/11/99	ford	21000					
18									

If Function

A simple If function will allow a cell to change depending on a conditional test.

=IF(test, what to do if it is true, what to do if it is false)

	F	G	H	I
	Qty on Hand	Order Information	Turnover Priority	
1				
2	18	=IF(F2<0,"customer back order","")		
3	24		medium	
5	10		medium	
3	4		high	
2	0		medium	
5	10		high	
4	24		high	
3	-5	customer back	medium	
2	2		high	

Put quotes around any text to be displayed.

In the example

test	if the quantity on hand in column F is less than zero
if true (quantity on hand in column F is greater than zero) then:	display the statement "customer back order"
if false (quantity on hand in column F is equal to, or greater than zero) then:	displays nothing.

Embedded If Function

An embedded If function will allow a cell to change depending on multiple conditional tests.

=IF(test, what to do if it is true, IF(test, what to do if it is true, what to do if it is false))

	F	G	H	I	J	K
1	Qty on Hand	Order Information	Turnover Priority	Order Level		
2	18	=IF(F2<0,"customer back order",IF(F2<=I2,"level low",""))				
3	24		medium	6		
4	10		medium	6		
5	4	level low	high	4		
6	0	level low	medium	6		
7	10		high	4		
8	24		high	4		
9	-5	customer back	medium	6		
10	2	level low	high	4		

In the example

test	if the quantity on hand in column F is less than zero	
if true (quantity on hand in column F is greater than zero) then:	display the statement "customer back order"	
if false (quantity on hand in column F is equal to, or greater than zero) then:	test	if the quantity on hand in column F is less than or equal to column I
	if true	display the statement "level low"
	if false	displays nothing

IS Functions

IS functions test the value of a cell.

Function	Returns TRUE if
ISBLANK(value)	Value refers to an empty cell.
ISERR(value)	Value refers to any error value except #N/A.
ISERROR(value)	Value refers to any error value (#N/A, #VALUE!, #REF!, #DIV/0!, #NUM!, #NAME?, or #NULL!).
ISLOGICAL(value)	Value refers to a logical value.
ISNA(value)	Value refers to the #N/A (value not available) error value.
ISNONTTEXT(value)	Value refers to any item that is not text. (Note that this function returns TRUE if value refers to a blank cell.)
ISNUMBER(value)	Value refers to a number.
ISREF(value)	Value refers to a reference.
ISTEXT(value)	Value refers to text.

ISERROR

Errors can occur in a cell for several reasons, such as a division by zero. The ISERROR function tests for an error. The ISERROR function can be used in conjunction with the IF function.

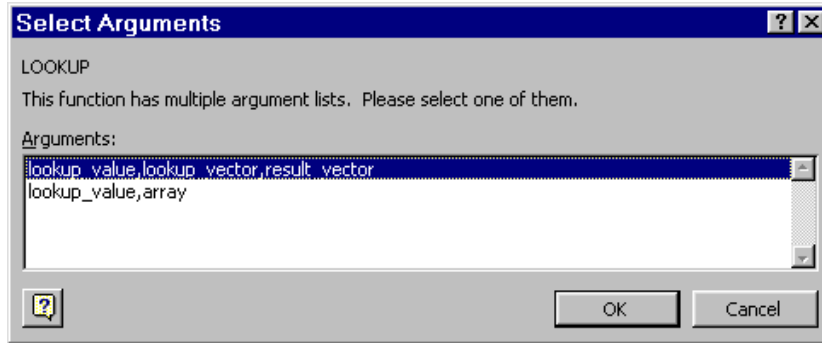
	A	B	C	D
		Monthly Sales	Number of Sales People	Average Sale per Salesperson
1	Month			
2	January	\$32,540.00	8	\$ 4,067.50
3	February	\$26,000.00	9	\$ 2,888.89
4	March			=+B4/C4
5	April			#DIV/0!
6	May			#DIV/0!
7	June			#DIV/0!

	A	B	C	D	E	F
		Monthly Sales	Number of Sales People	Average Sale per Salesperson		
1	Month					
2	January	\$32,540.00	8	\$ 4,067.50		
3	February	\$26,000.00	9	\$ 2,888.89		
4	March			=IF(ISERROR(B4/C4),0,B4/C4)		
5	April			\$ -		
6	May			\$ -		
7	June			\$ -		

Lookup

The Lookup Function can be used to pull information from one worksheet into another worksheet. i.e. a user could enter a part number on one sheet and it would pull the description and cost from another sheet.

There are two types of Lookup Functions: vector and array.



LOOKUP(lookup_value,lookup_vector,result_vector)

Lookup value = cell on first sheet to be looked upon the second sheet.

Lookup vector = range of cells on second sheet in which the function should look for the cell referenced on the first sheet. *(Note: the lookup numbers must be in alphabetical order.)*

Result vector = range of cells on second sheet that holds the information to be pulled into the first sheet.

Note: if the formula is to be copied, be sure to use absolute referencing where needed.

	A	B	C	D	E	F	G
1	Pet Store Invoice						
2							
3							
4	Item	Description	Qty	Cost	Total Due		
5	c85	=LOOKUP(A5,'Pet Food Pricing'!\$A\$2:\$A\$10,'Pet Food Pricing'!\$B\$2:\$B\$10)					
6	r39	Rabbit Food	2		0		
7	c87	Cat Food	0.5		0		
8	d87	Dog Food	20		0		
9	c86	Cat Food	5		0		

	A	B	C
1	Part #	Description	Cost per Pound
2	c25	Corn	0.32
3	c86	Cat Food	0.75
4	d87	Dog Food	0.55
5	f88	Finch Food	0.15
6	g39	Guiney Pig Food	0.52
7	j36	Parakeet Seed	0.1
8	q98	Sunflower Seeds	0.12
9	r39	Rabbit Food	0.48
10	s18	Wild Bird Seed	0.06

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LOOKUP(lookup_value,array)

Lookup value = cell on first sheet to be looked up on the second sheet.

Array = range of cells holding both the value being looked up and the cells to be pulled.

(Note: it defaults to looking at the first column or row and pulling from the last column or row. The lookup numbers must be in alphabetical order.)

Note: if the formula is to be copied, be sure to use absolute referencing where needed.

	A	B	C	D	E	F	G
1	Pet Store Invoice						
2							
3							
4	Item	Description	Qty	Cost	Total Due		
5	g39	Guiney Pig Food	5	=LOOKUP(A5,'Pet Food Pricing'!\$A\$2:\$C\$10)			
6	c25	Corn	2	0.32	0.64		
7	q98	Sunflower Seeds	0.5	0.12	0.06		
8	d87	Dog Food	20	0.55	11		
9	c86	Cat Food	5	0.75	3.75		
10							
11					\$ 18.05		

	A	B	C
1	Part #	Description	Cost per Pound
2	c85	Corn	0.32
3	c86	Cat Food	0.75
4	d87	Dog Food	0.55
5	f88	Finch Food	0.15
6	g39	Guiney Pig Food	0.52
7	j36	Parakeet Seed	0.1
8	q98	Sunflower Seeds	0.12
9	r39	Rabbit Food	0.48
10	s18	Wild Bird Seed	0.06
11			

Time

TIME(hour,minute,second)

The Time Function converts separate hours, minutes, and seconds given as numbers to an actual time

A	B	C
Time	Description	Amount
10:35:00 AM	Hours	2
10:35:00 AM	Minutes	10
10:35:00 AM	Seconds	30
Formula	Description (Result)	
=A2+TIME(C2,0,0)	Add 2 hours to the time above (12:35:00 PM)	
=A3+TIME(0,C3,0)	Add 10 minutes to the time above (10:45:00 AM)	
=A4+TIME(0,0,C4)	Add 30 seconds to the time above (10:35:30 AM)	

Weekday

WEEKDAY(serial_number,return_type)

The Weekday function returns a number to correspond to the day of the week for a specific date.

C	D	E	F	G	H	I	J
DOB	Sex	Marital Status	City	Occupation	Salary	Day of the week	
6/2/45	F	Married	Norfolk	Sales	\$ 56,000.00	=WEEKDAY(C5,1)	
8/31/53	M	Married	Virginia Beach	Sales	\$ 42,000.00	2	
7/8/74	F	Single	Chesapeake	Sales	\$ 15,000.00	2	
7/15/68	M	Married	Suffolk	Sales	\$ 36,500.00	2	
9/5/72	F	Married	Portsmouth	Sales	\$ 28,600.00	3	

=WEEKDAY(serial number,return type)

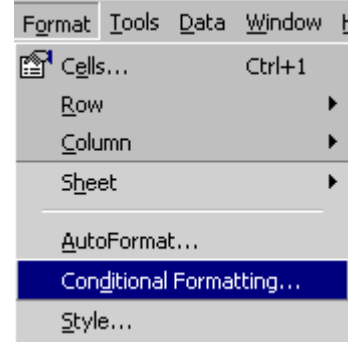
Serial Number	cell with date to evaluate	
return type	1	Sunday = 1, Monday = 2, etc.
	2	Monday = 1, Tuesday = 2, etc.
	3	Sunday = 0, Monday = 1, etc.

Conditional Formatting - Formulas

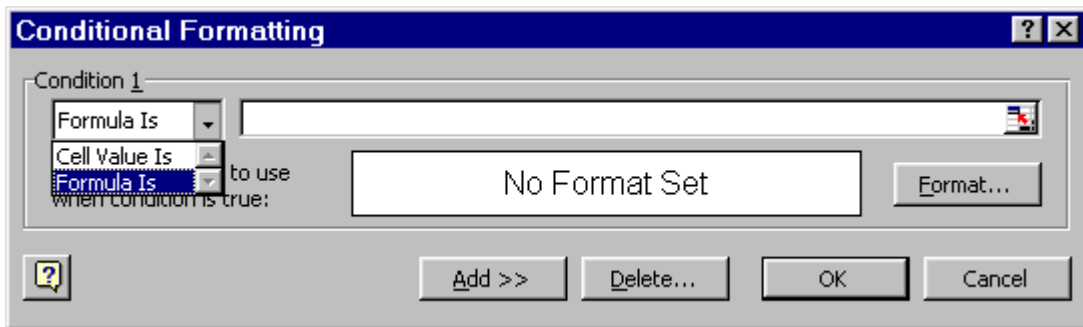
Conditional Formatting is used to change the format of a cell based on a criteria.

Select cell(s) for Conditional Formatting.

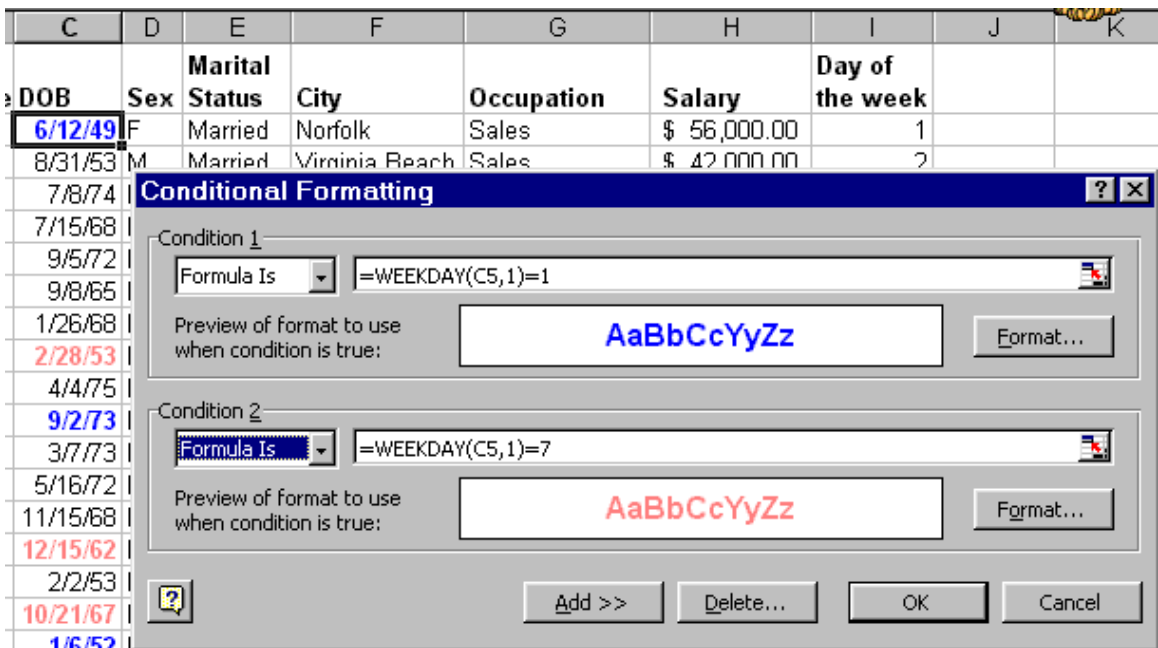
From the menu choose Format, Conditional Formatting.



In the dialog box that appears, use the drop down box to choose "Formula Is".



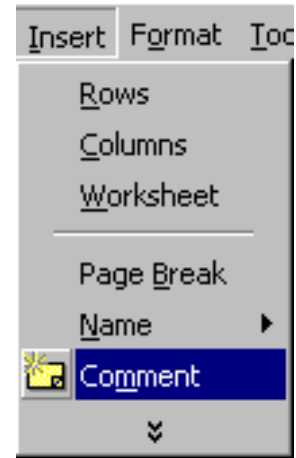
Key in the desired formula.



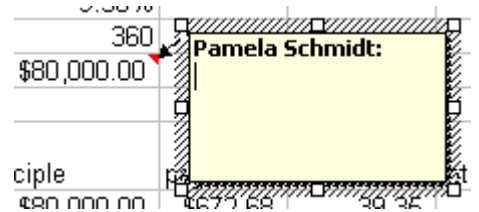
When the condition is met, the formatting will change.

Notes/Comments

To add a comment to a cell, from the menu choose Insert, Comment.

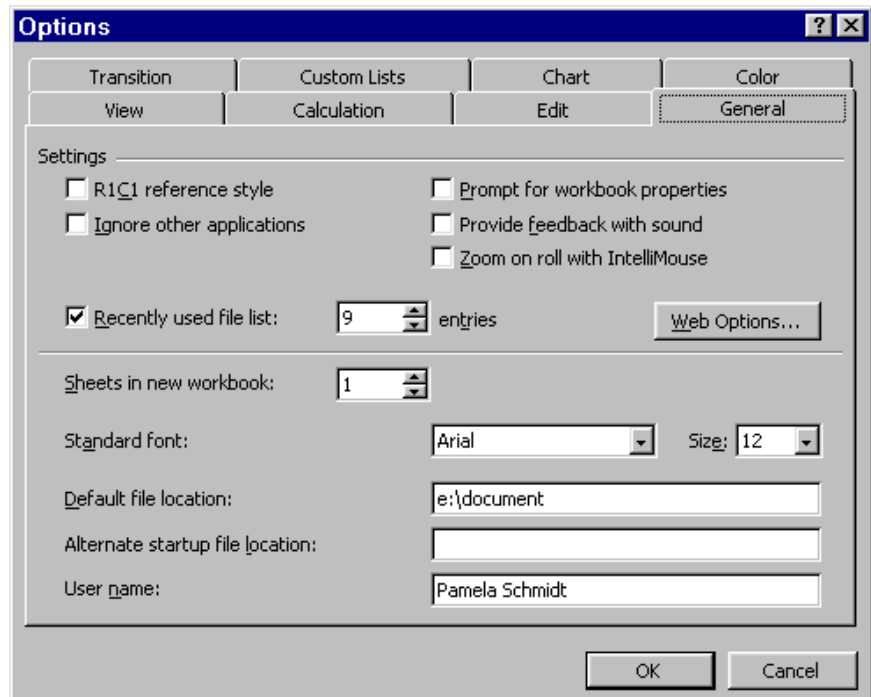


A box will appear allowing the entry of text. A small triangle will appear in the upper right corner of the cell.



Type in any notes or comments pertaining to the cell. The comment might be an explanation of a formula, or directions for the user.

Note: the default information in the comment box is pulled from the user name on the general tab in the options dialog box.

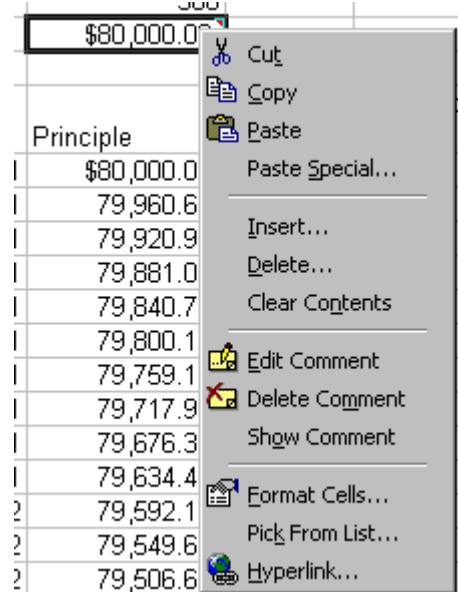
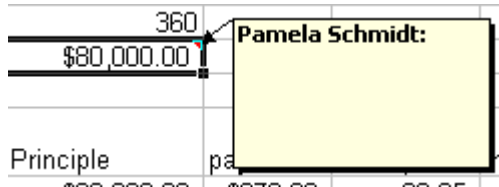


Deleting or Changing a Comment

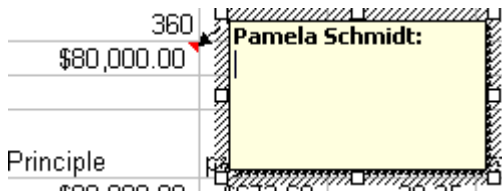
To delete the comment, right click on the cell with the comment, and choose delete comment from the pop up menu.

To change the comment, right click on the cell with the comment, and choose edit comment from the pop up menu.

Comment tool

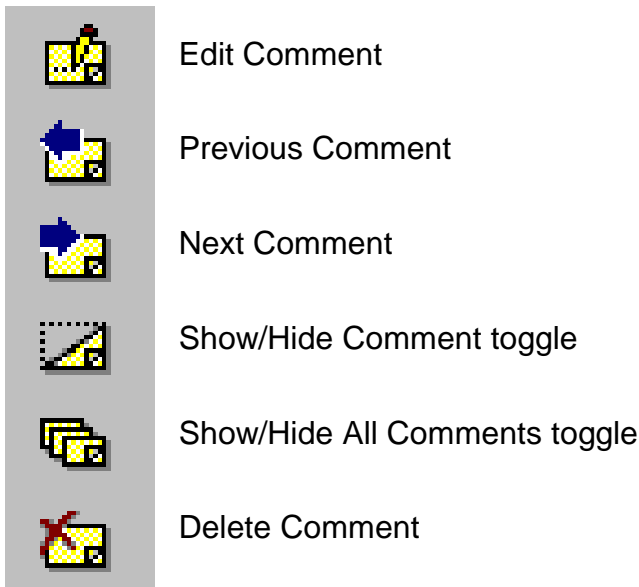


The comment box will open up to allow changes.



Reviewing Toolbar

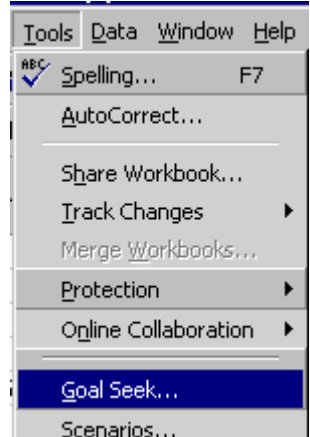
The reviewing toolbar has several comment tools.



Goal Seek

Goal Seek allows the user to dictate an answer to a formula. This works by allowing the system to change a cell containing a constant used in the formula.

To use Goal Seek, click on a formula, then from the menu choose Tools, Goal Seek.



A dialog box will appear.

	A	B	C	D	E	F
1	Mortgage Loan Analysis			Payments		
2	Down Payment			\$559.37		
3	Interest Rate		7.50%			
4	Term (months)		360			
5	Loan Amount		\$80,000.00			
6						
7		Principle	paym			
8	March 23, 2001	\$80,000.00	\$55			
9	April 22, 2001	79,940.63	\$55			
10	May 22, 2001	79,880.89	\$55			

Goal Seek [?] [X]

Set cell:

To value:

By changing cell:

Set cell	Enter the cell address of the containing the formula.
To value	Enter the value to which the answer should be set.
By changing cell	Enter the cell address of the constant that the system is allowed to change.

After choosing the OK button, the system will calculate the changes. If the goal can be achieved, a dialog box will pop up indicating that the solution was found.

