Excel for Hydrology

Section 7

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VBA functions

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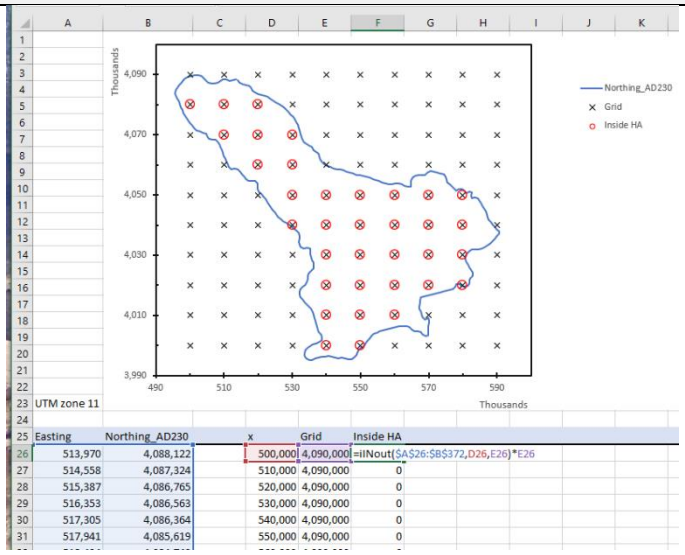
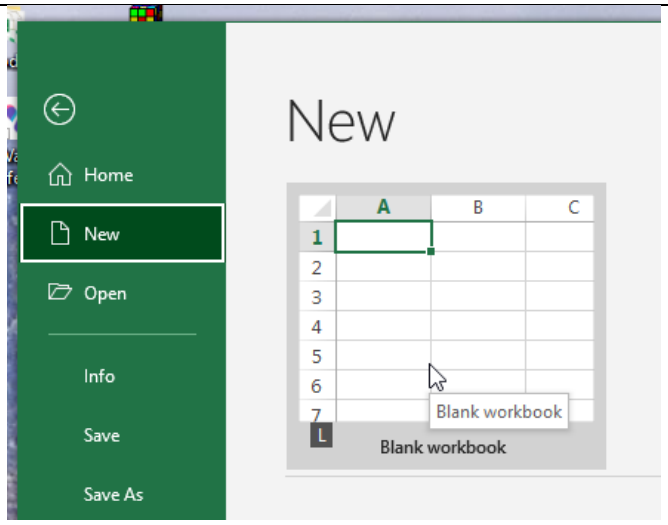
07_VBAfunctions

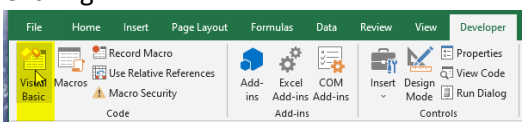
User-defined functions that are developed in VBA can be copied easily to new workbooks. Insert function tool can assist users with user-defined functions by prompting with variable names for function inputs.

InOutPOLYfunction.xlsm – Move VBA module to new workbook

Move VBA module	
User-defined function ***ilNout*** is in the workbook InOutPOLYfunction.xlsm. The function ***ilNout*** determines if an XY location falls inside or outside of a polygon.	
Open a new workbook to receive the VBA module with the function ***ilNout***. Open with mouse or use keyboard shortcut **Alt, f, n, l**	

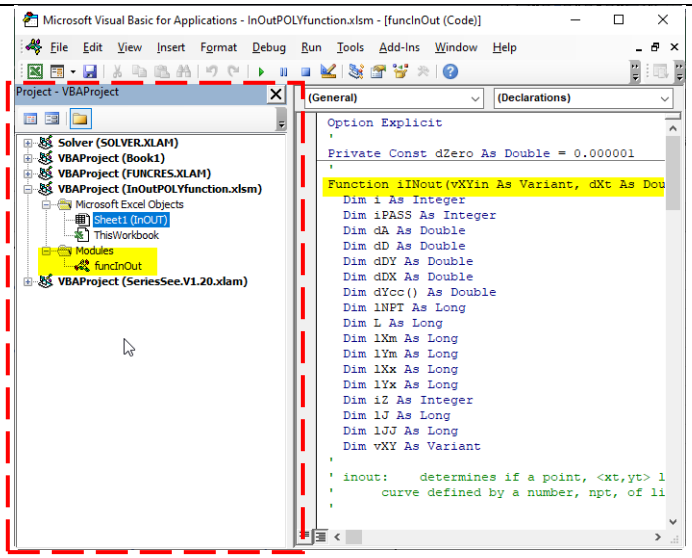
Open the VBA editor with commands,

Clicking



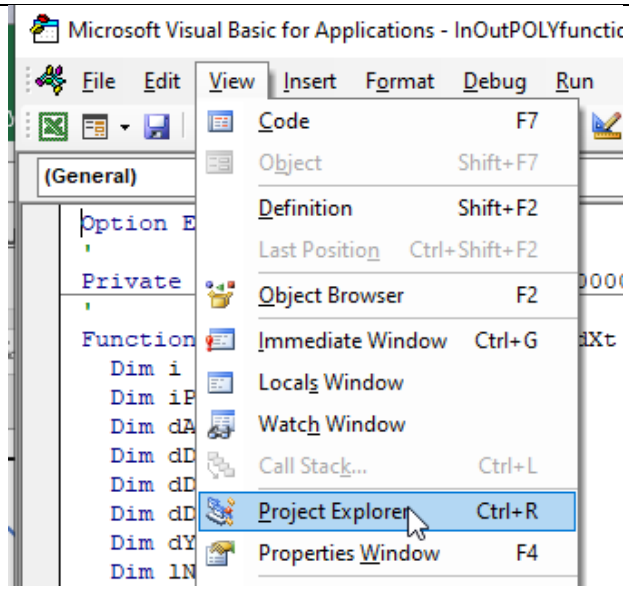
Keyboard shortcut, **Alt, L, V** or **alt+f11**

Project explorer is framed in red.

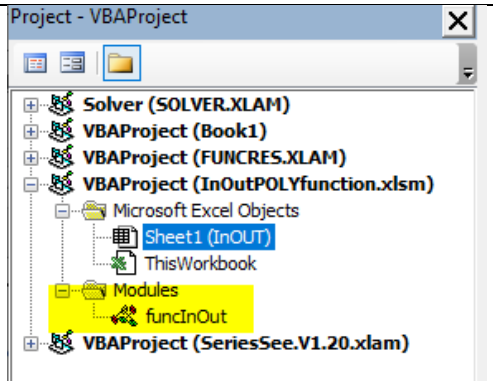


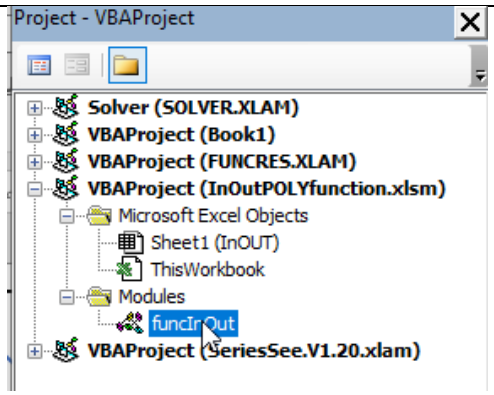
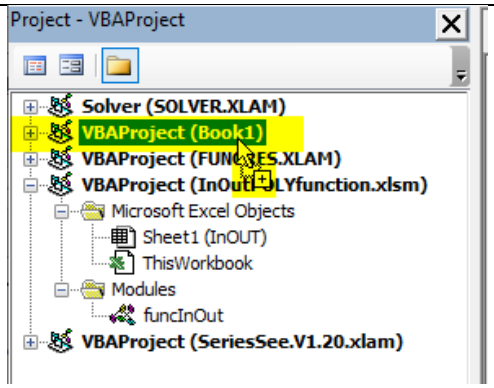
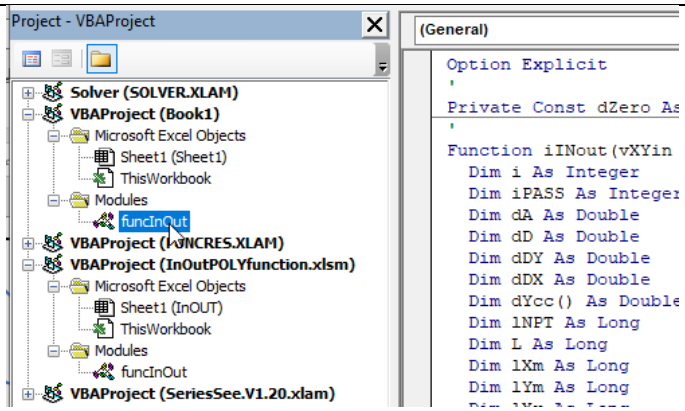
Make project explorer visible if not present.

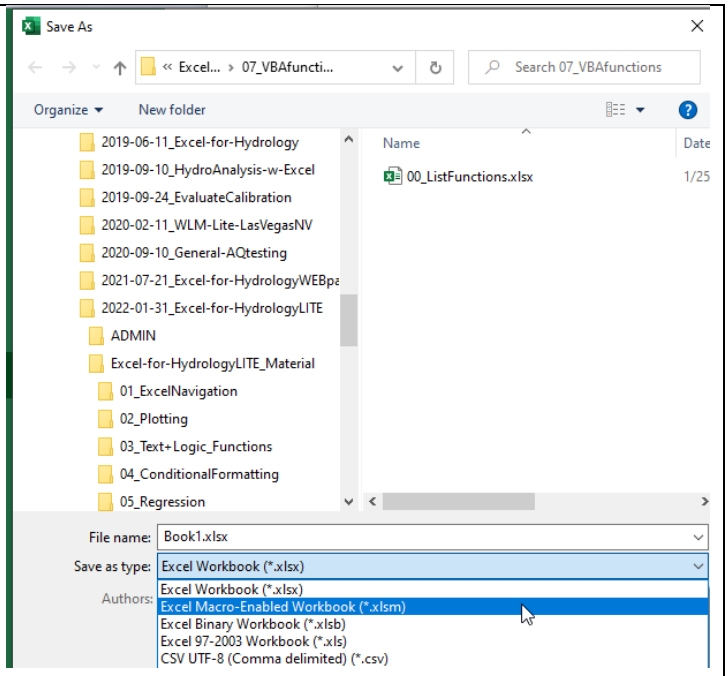
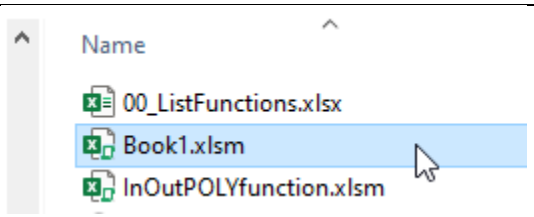
Select View and Project explorer or **ctrl+r**



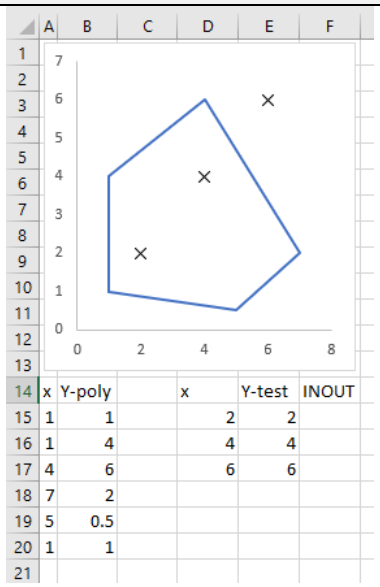
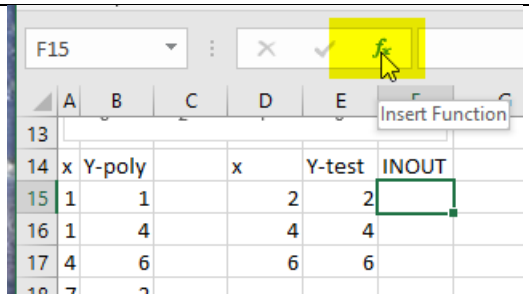
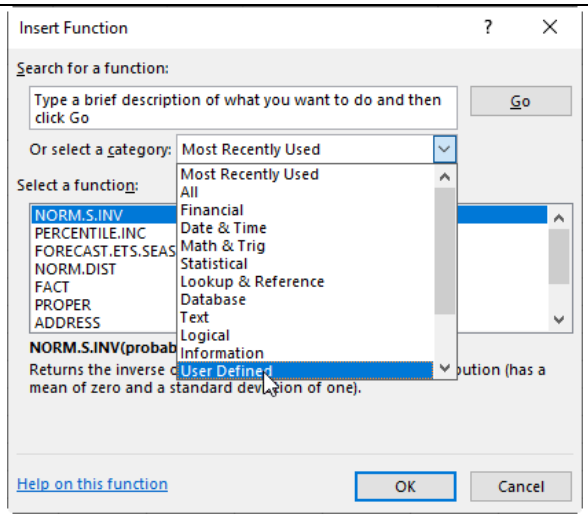
Function ***iINout*** resides
in the module funcInOut.

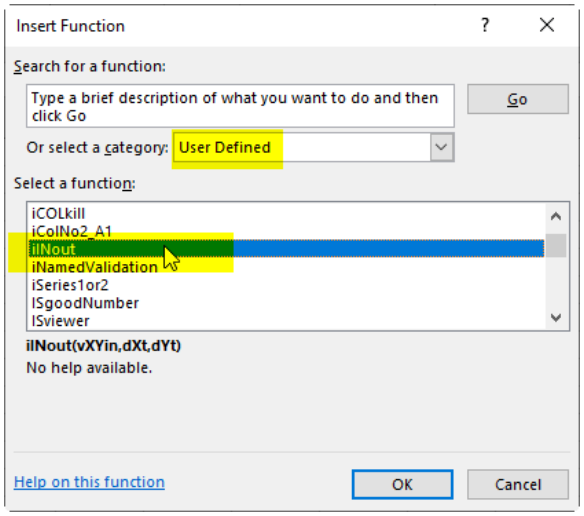
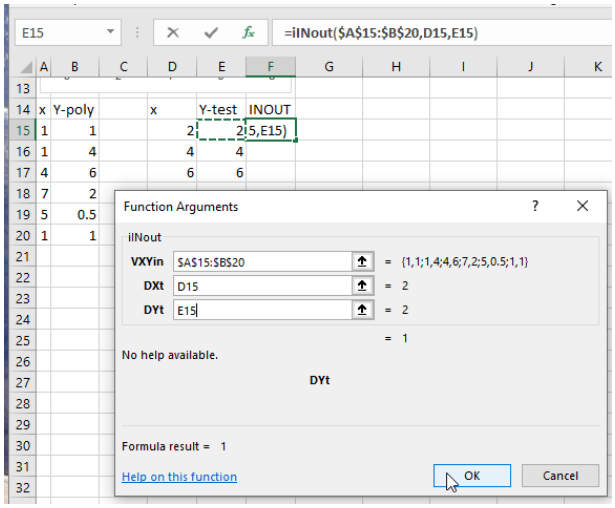


Select module funcInOut and keep left mouse button down.	
Drag module funcInOut to new workbook in Project Explorer and release left mouse button. New workbook is Book1 in this example.	
Module funcInOut resides in Book1 and function ***ilNout*** is can be called from worksheets in Book1.	

Save the new workbook with the “Save as…” command. Change the workbook type from *.xlsx to *.xlsm, so macros are allowed.	
New workbook is Book1.xlsm.	

Book1.xlsm – Apply user-defined function

Insert Function Tool	
Simple polygon and a few XY points added to new workbook Book1.xlsm. User-defined function ***ilNout*** will be called in column F.	 A B C D E F 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 0 1 2 3 4 5 6 7 0 2 4 6 8 x Y-poly x Y-test INOUT 1 1 2 2 1 4 4 4 4 6 6 6 7 2 5 0.5 1 1
Select cell F15, then Click Insert function tool in formula bar.	 F15 A B C D E Insert Function 13 14 15 16 17 x Y-poly x Y-test INOUT 1 1 2 2 1 4 4 4 4 6 6 6
Select User Defined in the Insert Function form. This restricts number of selectable functions.	 Insert Function Search for a function: Type a brief description of what you want to do and then click Go Go Or select a category: Most Recently Used Select a function: NORM.S.INV PERCENTILE.INC FORECAST.ETS.SEAS NORM.DIST FACT PROPER ADDRESS Most Recently Used All Financial Date & Time Math & Trig Statistical Lookup & Reference Database Text Logical Information User Defined NORM.S.INV(probab Returns the inverse c ution (has a mean of zero and a standard dev ion of one). Help on this function OK Cancel

Scroll through “Select a function:” list to ***ilNout*** function. Select ***ilNout*** function. Click OK button at bottom of form.	
Function Arguments form will replace the Insert Function form. Assign ranges or values to each input variable for a function. Click OK button at bottom of form.	
Copy completed ***ilNout*** function from cell F15 to cells F15:F17. Last XY point reported as outside of polygon.