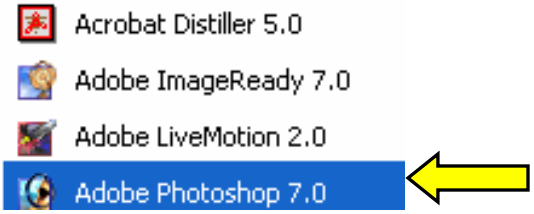
Pixelation Project Tutorial: Creating Optical Illusions

1. Open Adobe Photoshop

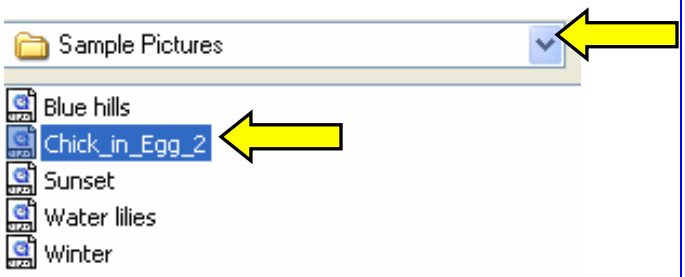
- **Click "Start"**
- **Select "All Programs"**

Select "Adobe Photoshop 7.0"

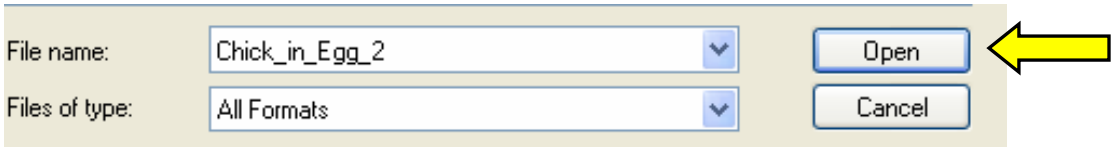


2. Open Your Picture

- **Go to "File"**
- **Select "Open"**



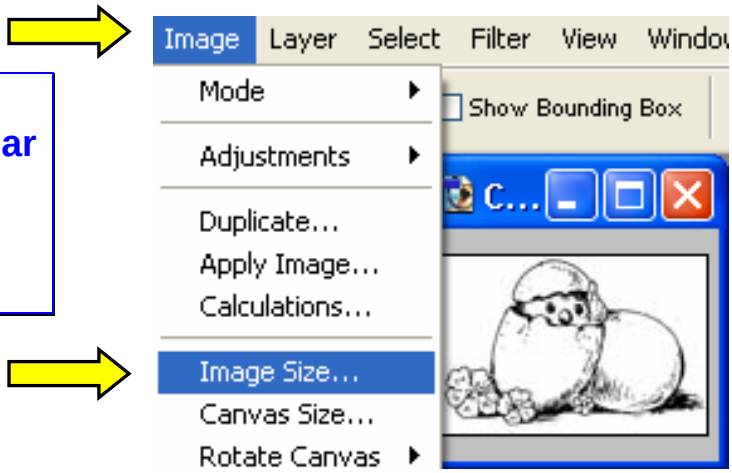
- **Go to the file with picture**
- **Select "your picture"**
- **Click "Open"**



3. To Enlarge or Reduce Image Size

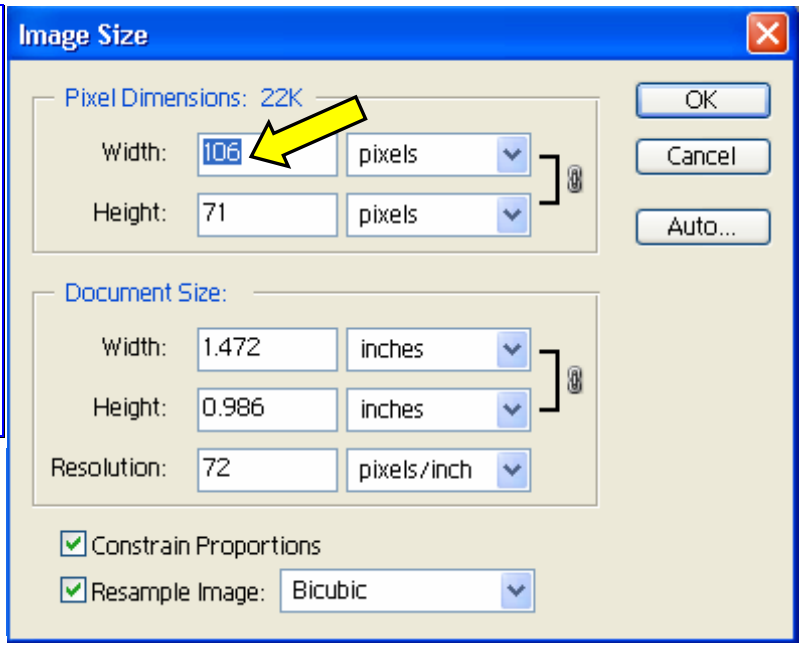
(The example is to change a very small picture to a larger size.)

- **Go to the "Image" on toolbar**
- **Select "Image Size…"**



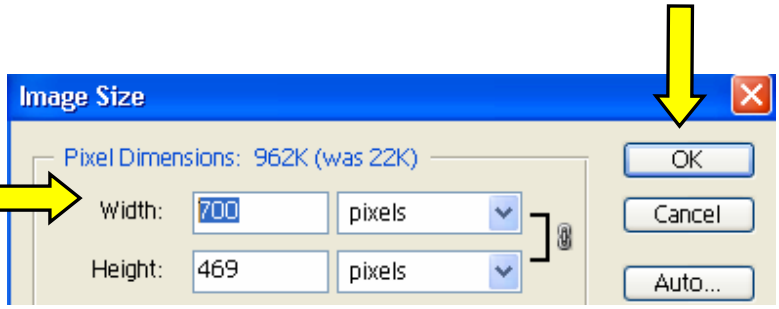
Go to the "Width"

Change the number to higher value and check till the picture is the size you can work with. (Follow the next steps.)



"106" is changed to "700"

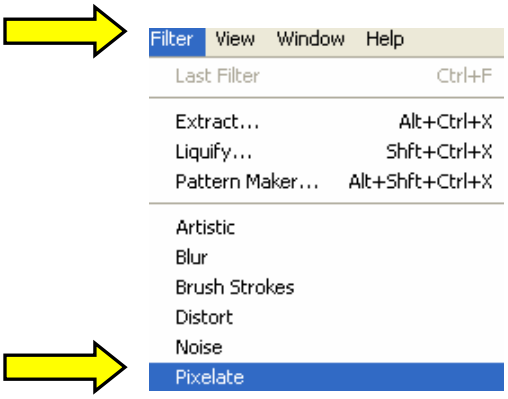
Click "OK"
(Note the Height is changed automatically "71" to "469".)



Adjust the size of the box to view the enlarged picture

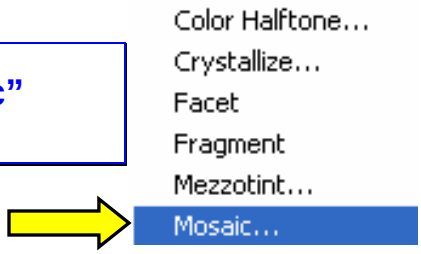
- Move **the pointer to the corner of the picture box (pointer turns into green diagonal arrows, ↘)**
- Hold and drag **out until you see the enlarged picture**

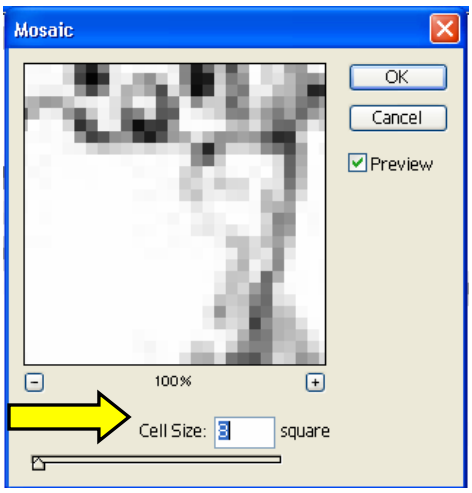
4. Convert to Mosaic Picture



- **Go to "Filter" on the toolbar**
- **Select "Pixelate"**

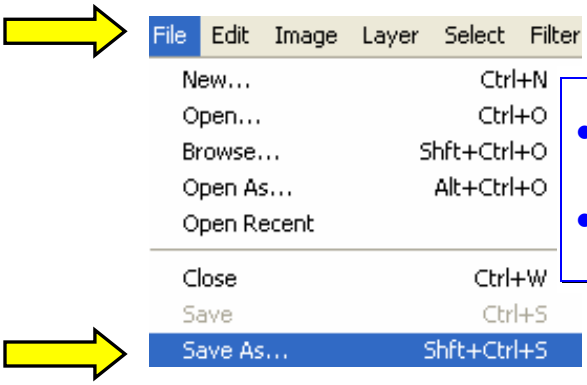
Select "Mosaic"





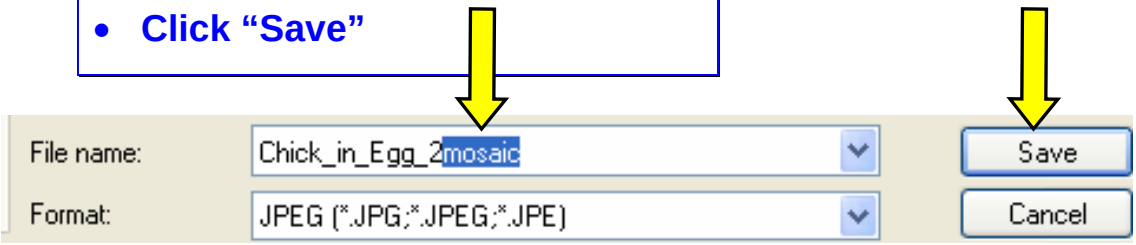
- **Type "8" square for Cell Size** (Higher the number; greater pixelation)
- **Click "OK"**

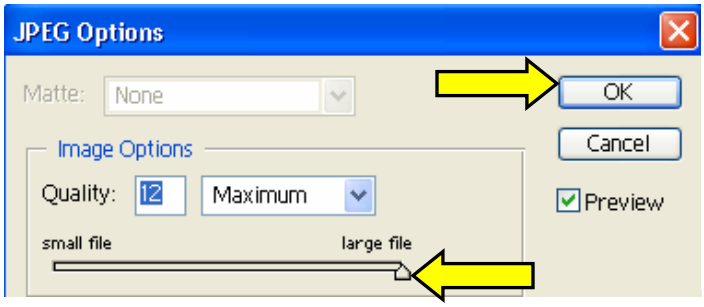
5. Save the Picture with New Name



- **Go to "File"**
- **Select "Save As…"**

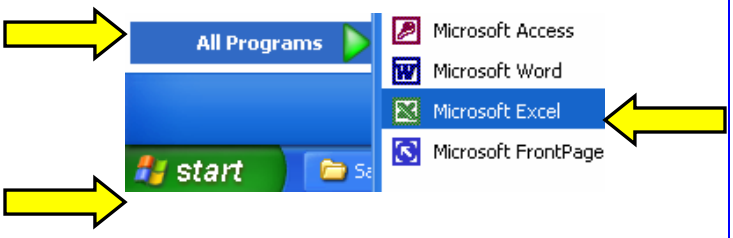
- **Move the pointer behind "2" and Click**
- **Type "mosaic" to File name**
- **Click "Save"**





- **Click and hold**
- **Move to the "large file" end**
- **Click "OK"**

6. Open Microsoft Excel Program

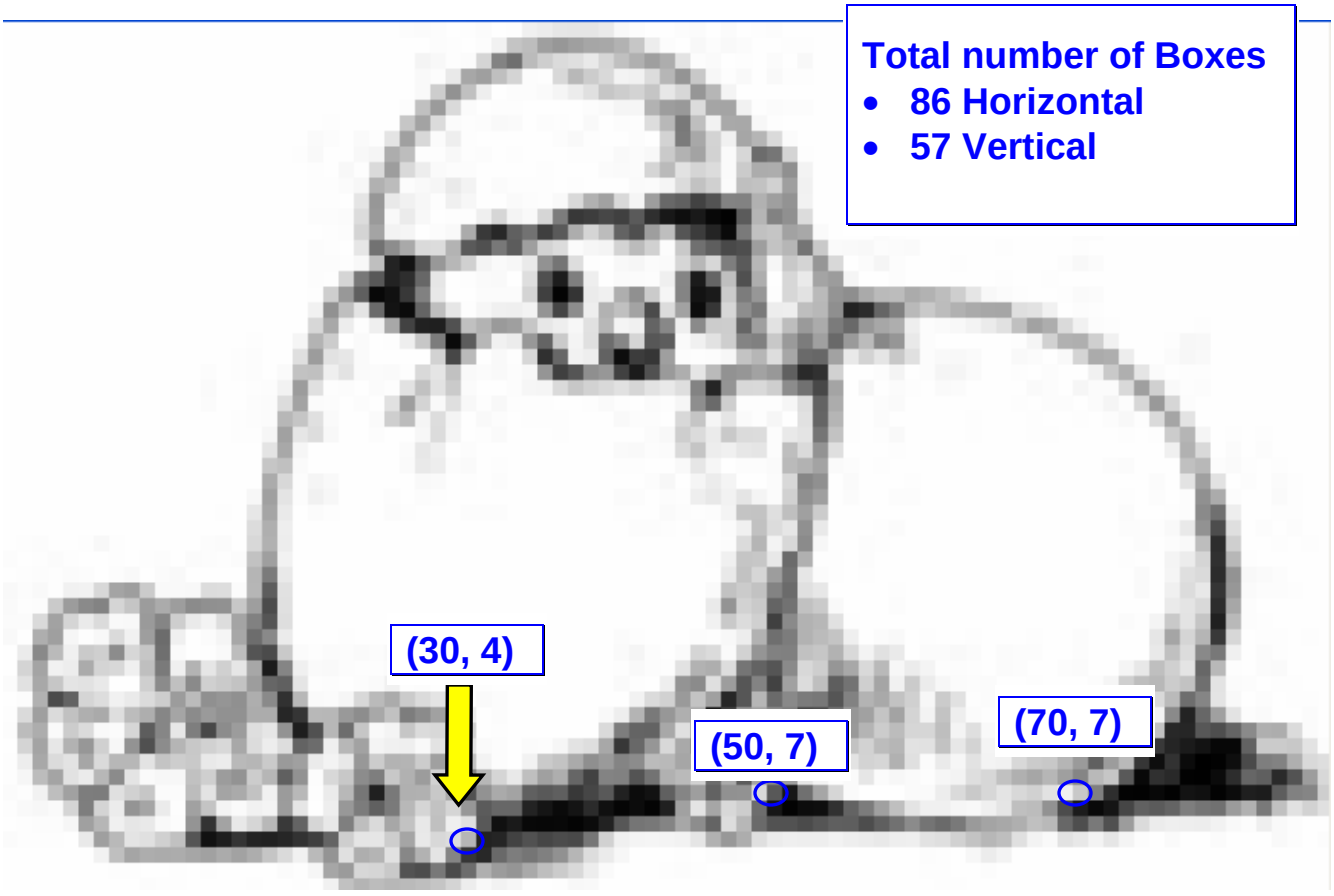


- **Go to "Start"**
- **Select "All Programs"**
- **Select "Microsoft Excel"**

- ***Minimize Excel and go back to Photoshop***

7. Photoshop: Determine Coordinates

- **Count the total number of Horizontal and Vertical number of boxes**
- **Look for an area with most shaded boxes and count**



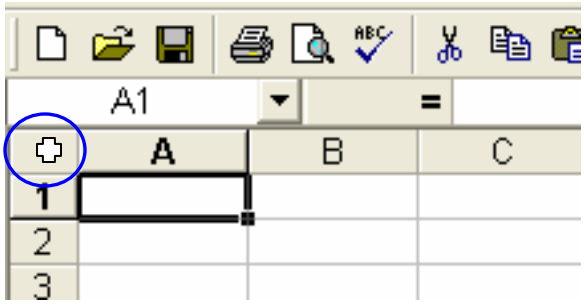
Total number of Boxes
- **86 Horizontal**
- **57 Vertical**

- **The coordinate of this box is (22, 1)**
- **Horizontal #22 (count from Left to Right)**
- **Vertical #1 (count from Bottom to Top)**

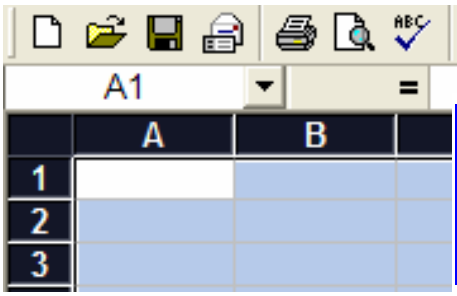
8. Microsoft Excel: Set Up Coordinates

a. To change whole sheet at one time

Move the pointer( ) in the box above the row number 1 and in front of the column A

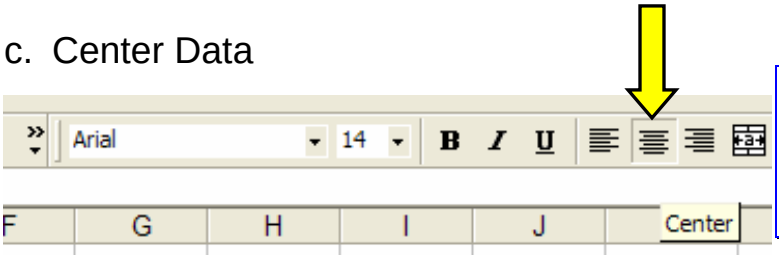


b. Click the pointer ( ) to highlight the spreadsheet



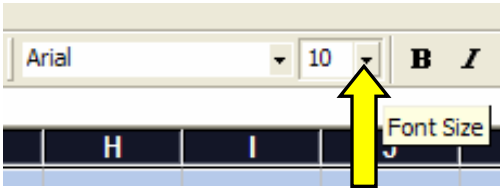
Click ( ) to highlight the spreadsheet

c. Center Data



- **Click on the to center**

d. Change the font size to “14” on the toolbar



Click on the down arrow and select font size “14”

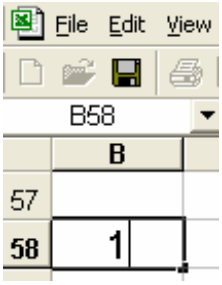
(or Click inside the box “10” and type “14”)

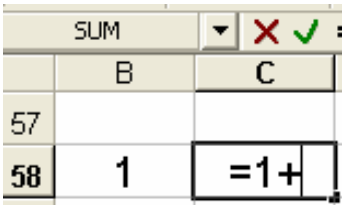
9. Microsoft Excel: Label X and Y –axes for Coordinates

a. X–axis

Total number of Boxes
86 Horizontal Boxes
57 Vertical Boxes

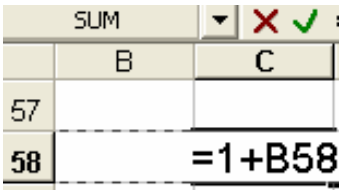
- **Scroll down to Cell B58**
- **(Column B, Row 29)**
- **Type "1" and Click "Enter"**

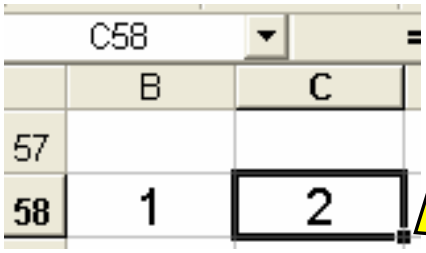




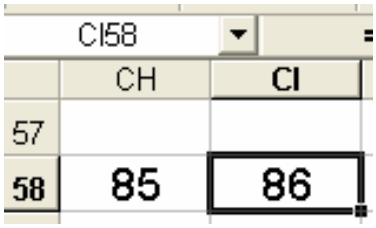
- **Click Cell C58**
- **Type "=1+"**

- **Click Cell B58**
- **Click "Enter"**



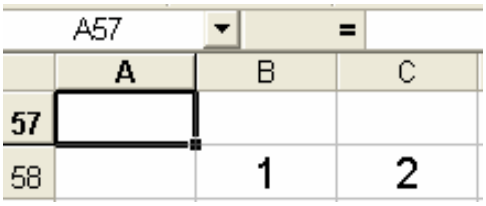


- **Click Cell C58**
- **Move the pointer to the bottom right corner until + appears**

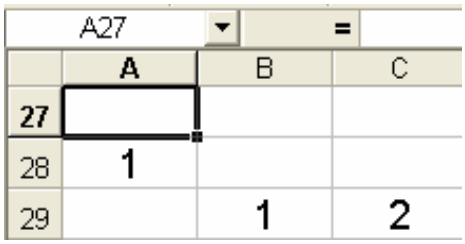


- **Hold + with the left mouse button**
- **Drag to Cell CI58 and let go the mouse button**
  (If you go less than 86 continue to copy
  If you go over 86, delete the remaining columns)

b. Y–axis

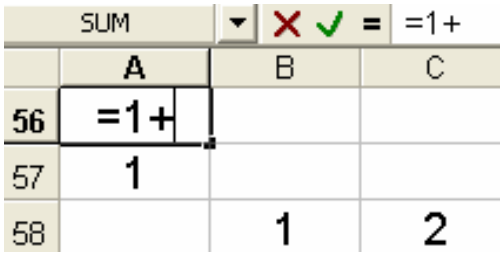


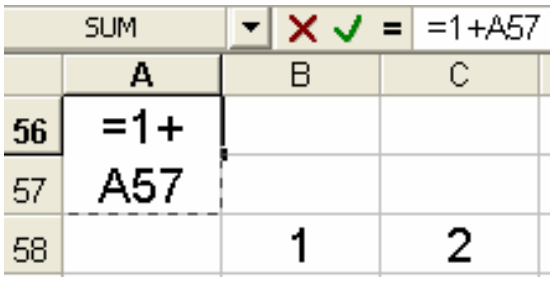
- **Go to Cell A57 (Click "Home" on Keyboard and go up one)**

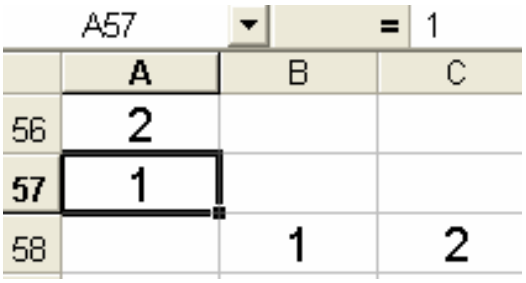


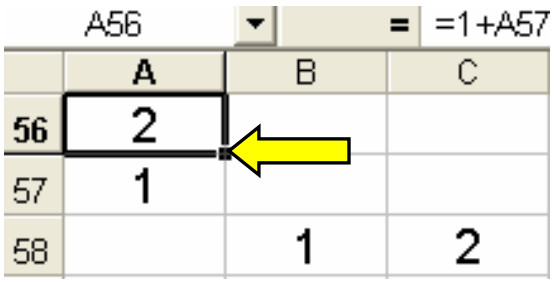
- **Type "1" in Cell A57**
- **Go to Cell A56**

- **Type "=1+"**
- **Click Cell A57**
- **Click "Enter"**

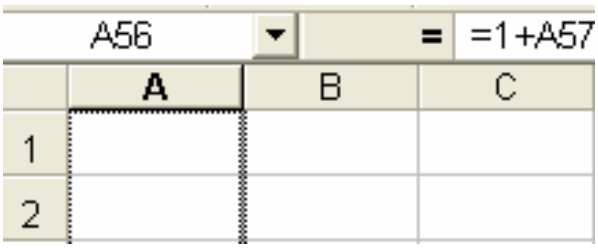


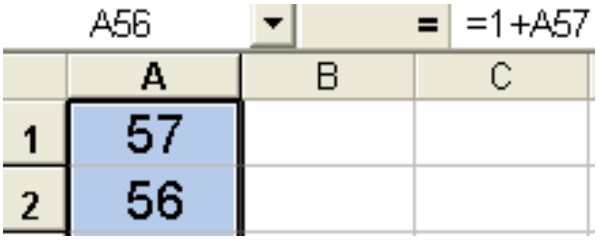






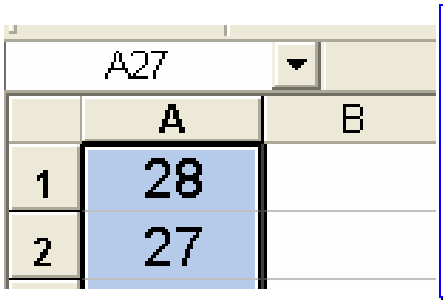
- **Click Cell A56**
- **Move the pointer to the bottom right corner until + appears**





- **Hold + with the left mouse button**
- **Drag to Cell A1 and let go the mouse button**

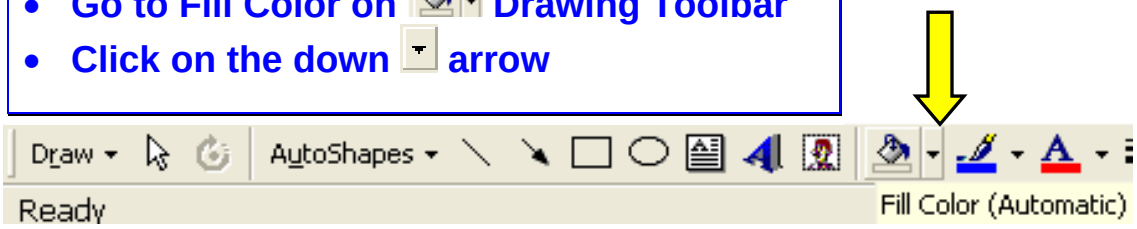
c. Separate X and Y axes by color

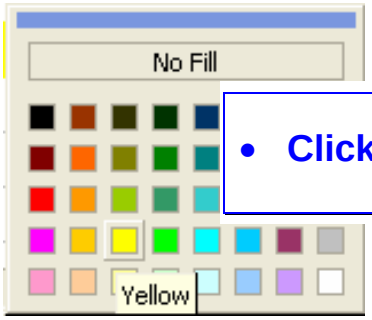


Highlight Cell A1 to A57

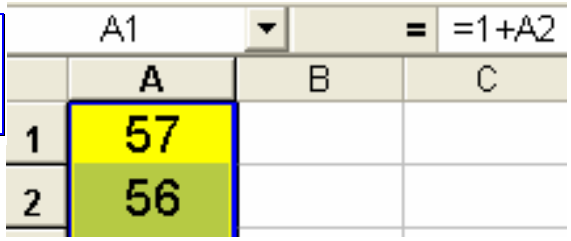
- **Click and Hold on Cell A1**
- **Continue to Hold left mouse button**
- **Drag down to Cell A57**

- **Go to Fill Color on Drawing Toolbar**
- **Click on the down arrow**





- **Click on Yellow**



Fill Color (Yellow) for Cells B58 to CI58

	A	B	CI
56	2		
57	1		
58		1	86

10. Make a Copy of the prepared data Table

(Prepare for an area to convert value to fraction)

A1 = =1+A2

	A	B	CI
56	2		
57	1		
58		1	86

- **Highlight Cell A1 to CI58**
- **Copy:**
  Click on the Toolbar

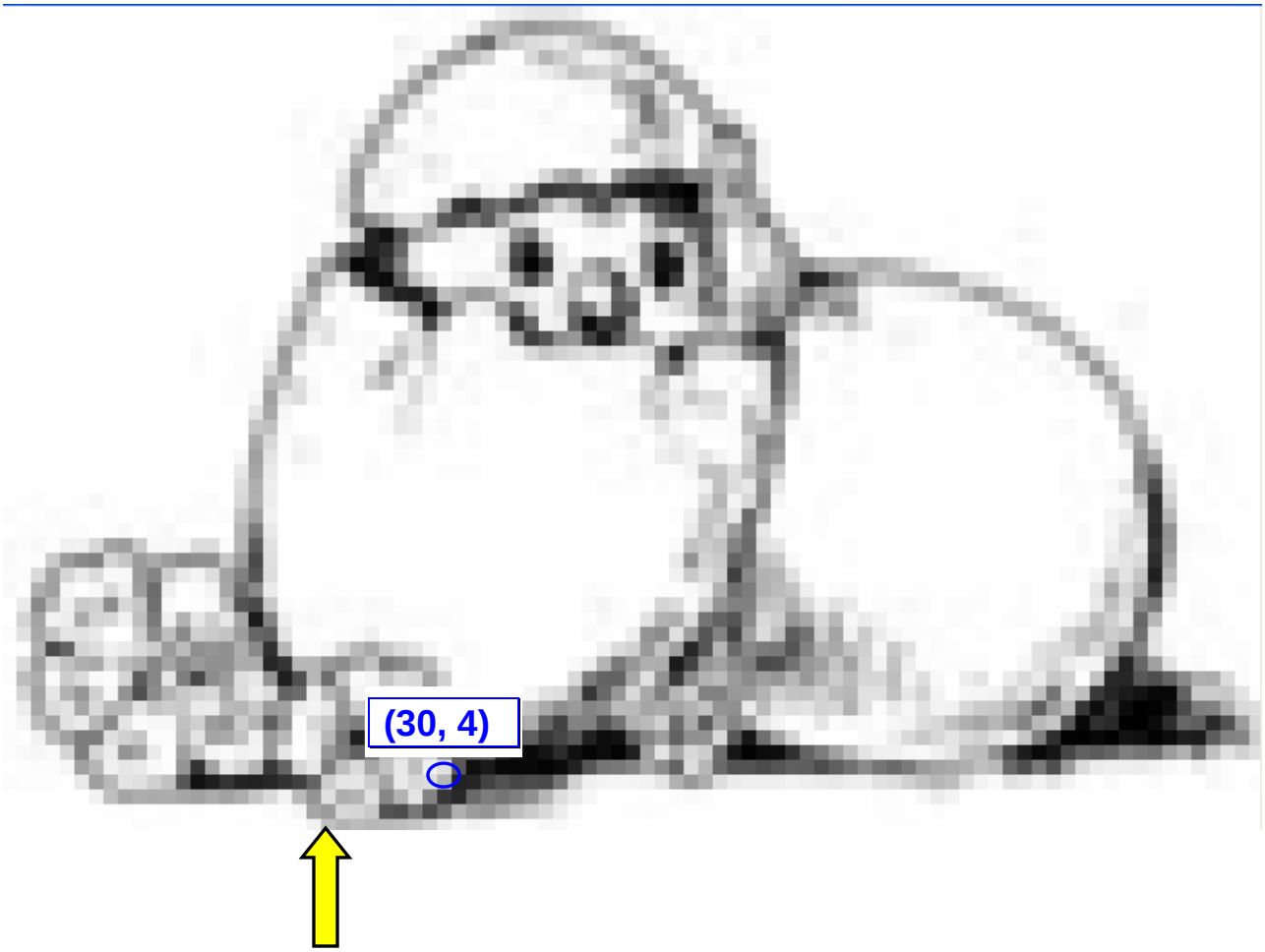
A60 = =1+A61

	A	B	CI
56	2		
57	1		
58		1	86
59			
60	57		
61	56		

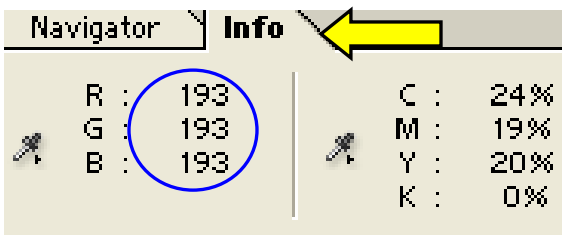
- **Click on Cell A60**
- **Paste:**
  Click on the Toolbar

11. Photoshop: Navigator Info Tab

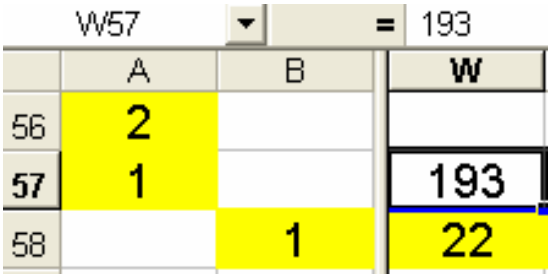
(Located on the upper right hand corner of the screen)



- **Move the pointer to coordinate (22, 1)**
- **Horizontal #22 (count from Left to Right)**
- **Vertical #1 (count from Bottom to Top)**
- **The "Info Tab" Indicate a value of 193 for R, G, B**



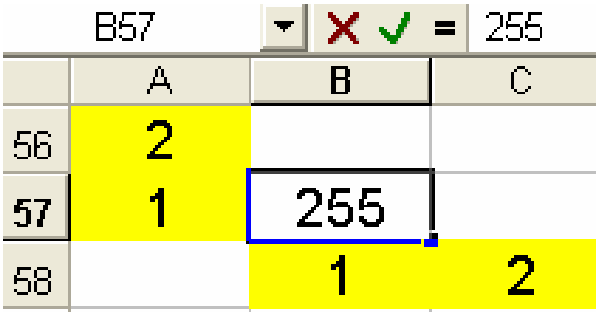
12. Record the value “193” on the prepared Excel sheet



- **Go to Cell W57 for coordinate (22, 1)**
- **Type “193”**
- **Click “Enter”**

Coordinate (1, 1) has value of “255”

- **Go to Cell B57**
-
- **Type “255”**
- **Click “Enter”**

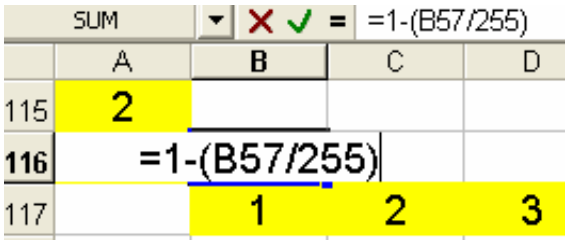


Record appropriate value for all boxes (Work in pairs)

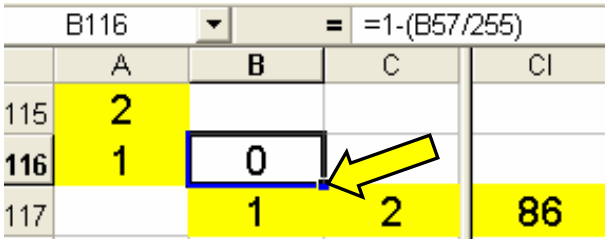
- **Value finder: check the values**
- **Recorder: Input the value in correct coordinate**

- **Picture is saved already therefore; do not save again when closing the Adobe Photoshop. (Saving again will change the setting.)**

13. Set Up Conversion Formula

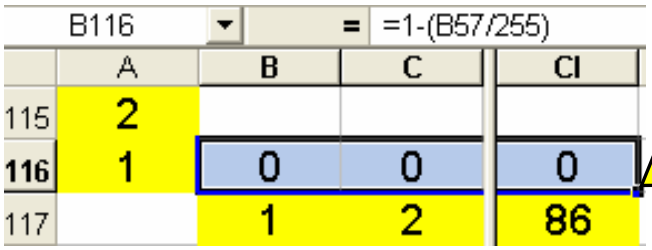


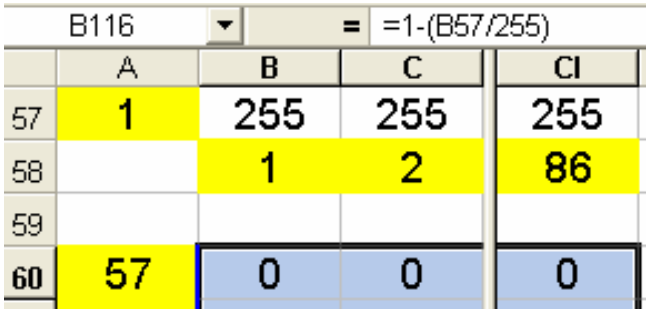
- **Go to Cell B116**
- **Type "=1– (+B28/255)"**
- **Click "Enter"**



Copy Formula:

- **Click Cell B116**
- **Move the pointer to the bottom right corner until + appears**
- **Hold + with the left mouse button**
- **Drag to Cell CI116 and let go the mouse button**

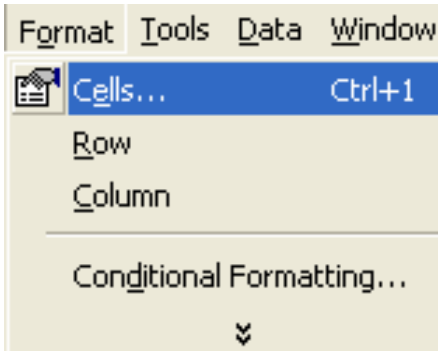




Copy Cells B116 – CI116
(It's already highlighted.)

- **Moved the pointer to the bottom right corner of Cell CI116**
- **Hold + with the left mouse button**
- **Drag to Cell CI60 and let go the mouse button**

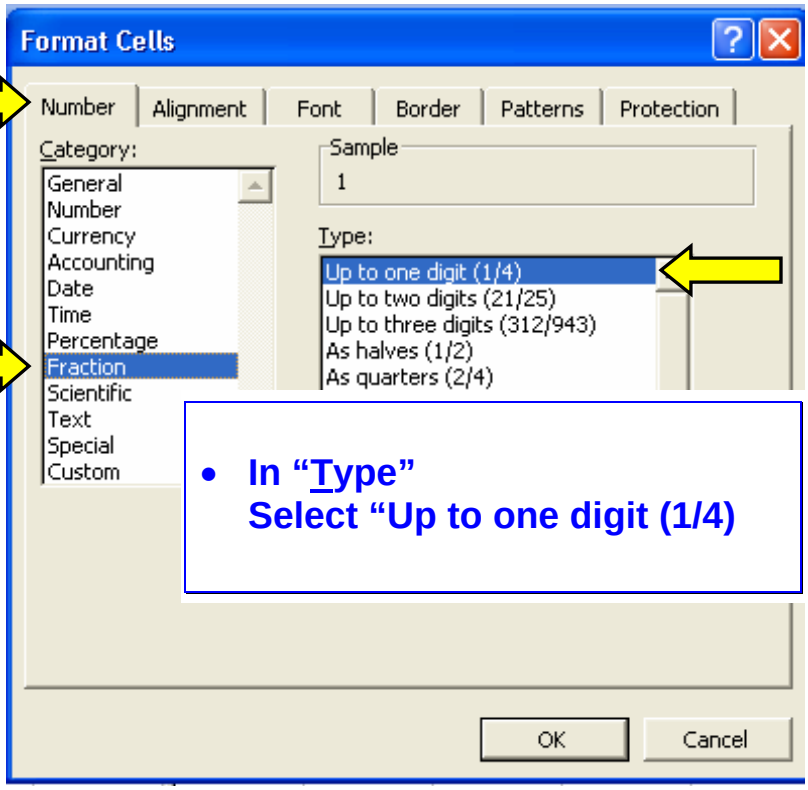
14. Convert Value to Fraction



Highlight Cells B60 to CI116

- **Go to "Format"**
- **Select "Cells..."**

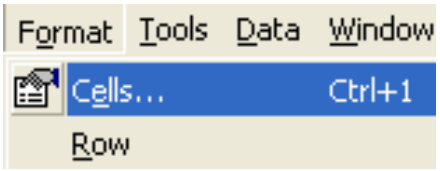
- **In "Number" Tab**
- **In "Category" Select "Fraction"**



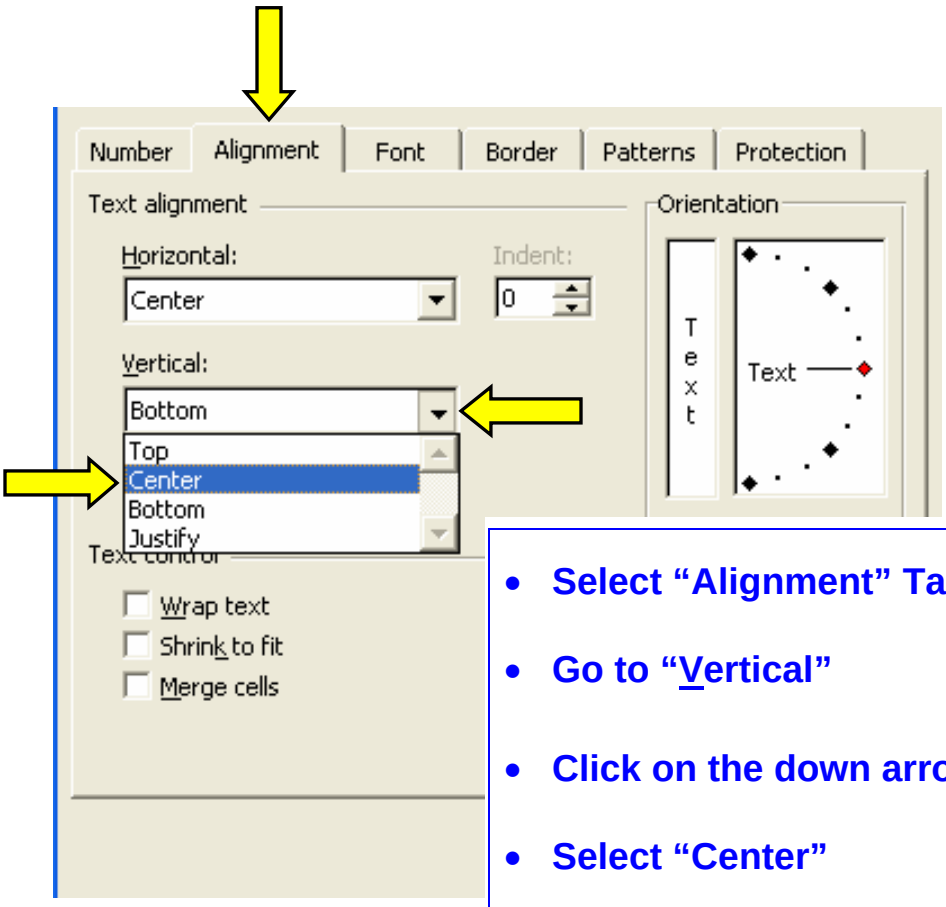
- **In "Type" Select "Up to one digit (1/4)**

Keep the Cells B60 to CI116 as highlighted for next step.

15. Convert Cell to Square

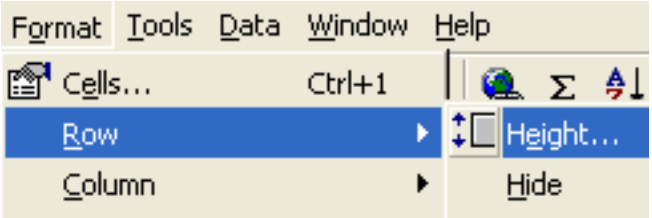


- **Go to "Format"**
- **Select "Cells…"**



- **Select "Alignment" Tab**
- **Go to "Vertical"**
- **Click on the down arrow**
- **Select "Center"**

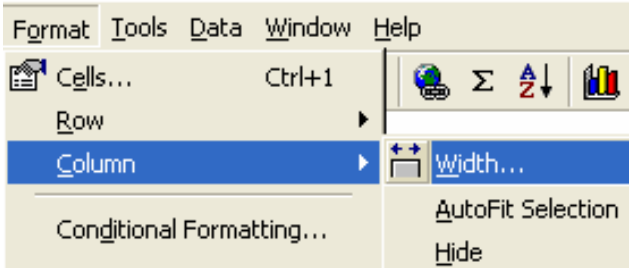
16. Change Row Height



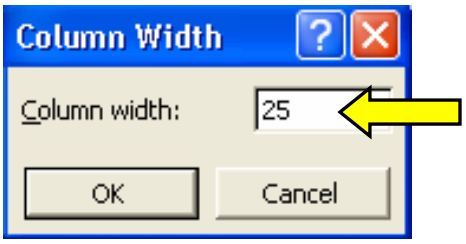
- **Go to "Format"**
- **Select "Cells…"**
- **Click "Height…"**

- **Type "144" for Row height**

17. Change Column Width



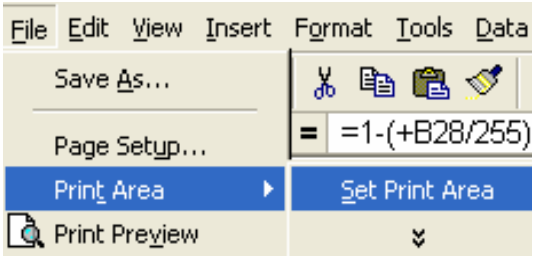
- **Go to "Format"**
- **Select "Column"**
- **Click "Width…"**



- **Type "25" for Column width**

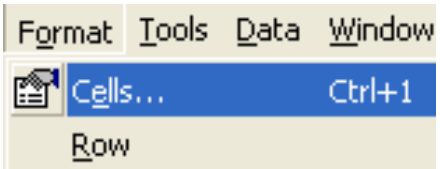
Keep the Cells B60 to CI116 as highlighted for next step.

18. Set Print Area



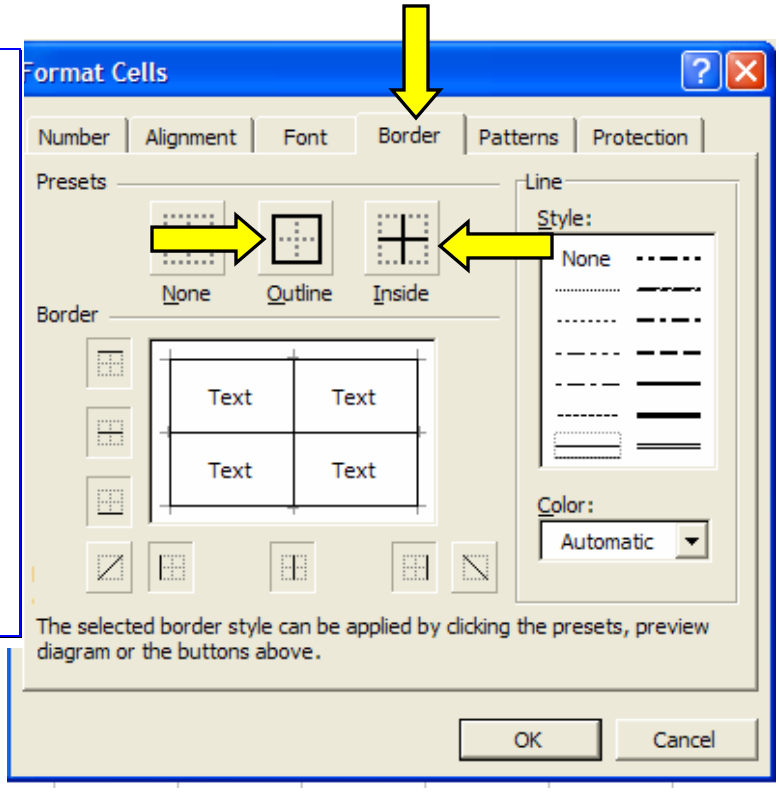
- **Go to "File"**
- **Select "PrintArea"**
- **Click "Set Print Area"**

19. Draw Borders

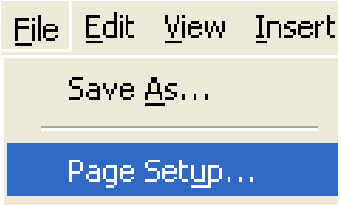


- **Go to "Format"**
- **Select "Cells..."**

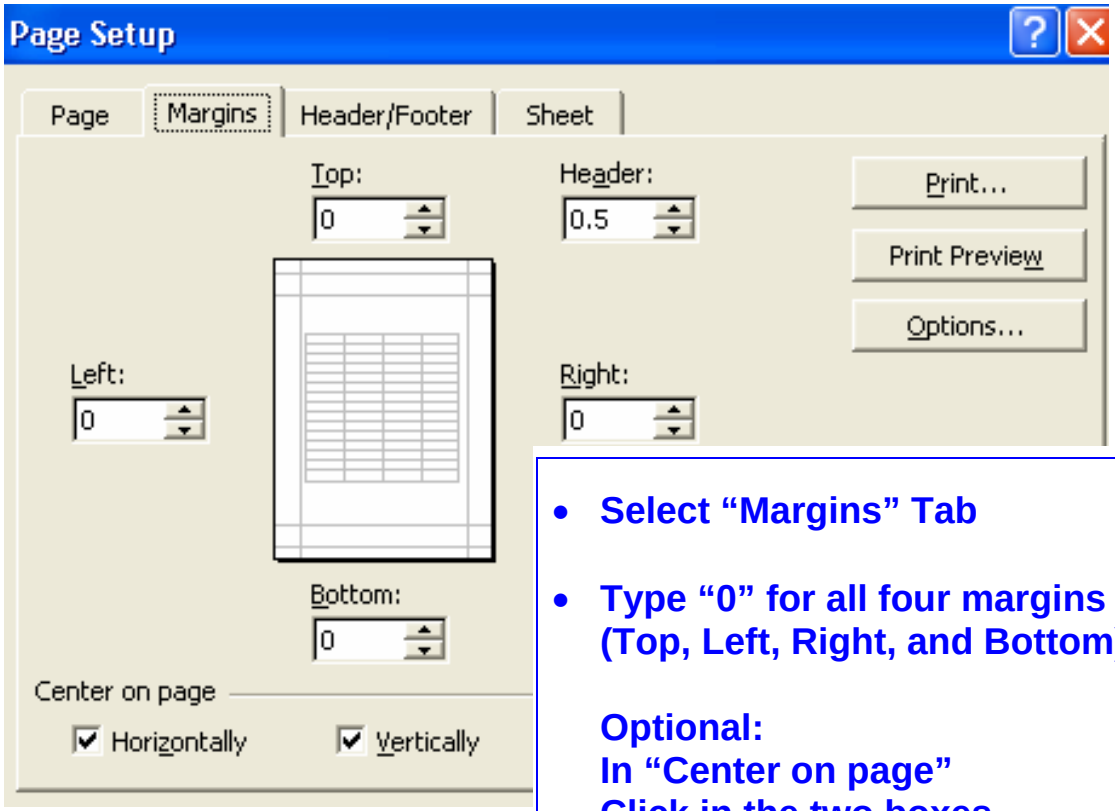
- **Select "Border" Tab**
- **Click on "Outline"**
- **Click on "Inside"**
- **Click "OK"**



20. Change Margins



- **Go to "File"**
- **Click "Page Setup…"**



- **Select "Margins" Tab**
- **Type "0" for all four margins (Top, Left, Right, and Bottom)**

  Optional:
  In "Center on page"
  Click in the two boxes

21. **Print and Number the back of each pages**
22. **Use pencil to outline the fraction value of each cell**
    Be creative!
23. **Use a permanent black marker and color the fraction value of each square. (Must do this on top of the newspapers to prevent any marking on the table.)**
24. **Cut the outside border of each page.**
    Think about where to cut and what to leave to make it easier to tape all the papers!
25. **Stand back 30–40 feet and do you see your picture?**