

Creating Pivot Tables Using Excel 2003

Creating Six Kinds of Tables
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*Slides at: [www.StatLit.org/pdf/
Create-Pivot-Tables-Excel-2003-6up.pdf](http://www.StatLit.org/pdf/Create-Pivot-Tables-Excel-2003-6up.pdf)*

Use this eight-question (Q1-Q8) survey data: B1:I241

Data for Q1-Q4 (B-E) is Binary: 0=No, 1=Yes.
 Data for Q5-Q6 (F-G) is Ordinal (discrete): 1-5.
 Data for Q7-Q8 (H-I) is Quantitative (ratio).

	A	B	C	D	E	F	G	H	I
1	ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
2	1	0	1	0	0	3	5	67	5
3	2	0	1	0	1	4	1	62	4
4	3	0	1	0	1	3	4	60	5
5	4	0	1	1	0	4	5	60	4
6	5	0	0	1	0	3	1	71	3

Excel instructions and data at:

www.StatLit.org/xls/2012Isaacson240Data.xls

A: From the Data menu, Select “Pivot Table”

The screenshot shows the Microsoft Excel 2003 interface. The menu bar includes File, Edit, View, Insert, Format, Tools, Data, Window, Help, and Adobe PDF. The Data menu is open, displaying the following options: Sort..., Filter, Form..., Subtotals..., Validation..., Table..., Text to Columns..., Consolidate..., Group and Outline, PivotTable and PivotChart Report..., Import External Data, List, XML, and Refresh Data. The 'PivotTable and PivotChart Report...' option is highlighted in yellow. The background shows a spreadsheet with columns A through D and rows 1 through 14. The data in the spreadsheet is as follows:

	A	B	C	D
1	ID	Q1	Q2	Q3
2	1	0	1	0
3	2	0	1	0
4	3	0	1	0
5	4	0	1	1
6	5	0	0	1
7	6	0	0	0
8	7	0	0	1
9	8	1	0	0
10	9	1	0	1
11	10	0	1	1
12	11	0	1	0
13	12	1	0	1
14	13	0	1	1

B: In Wizard, Select 'Excel List' and 'Pivot Table'



Knowing how to create pivot tables is *a valuable skill*.

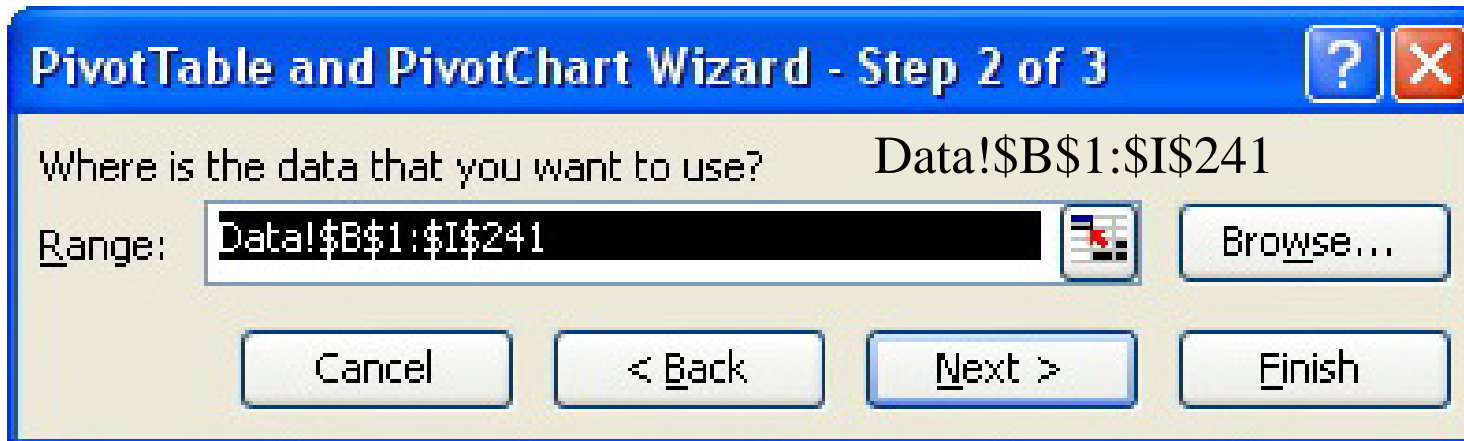
Knowing which is the better table is *a more valuable skill*.

Describing percentage data is *a very valuable skill*.

Comparing percentage data is *an extremely valuable skill*.

C: Select Data Range

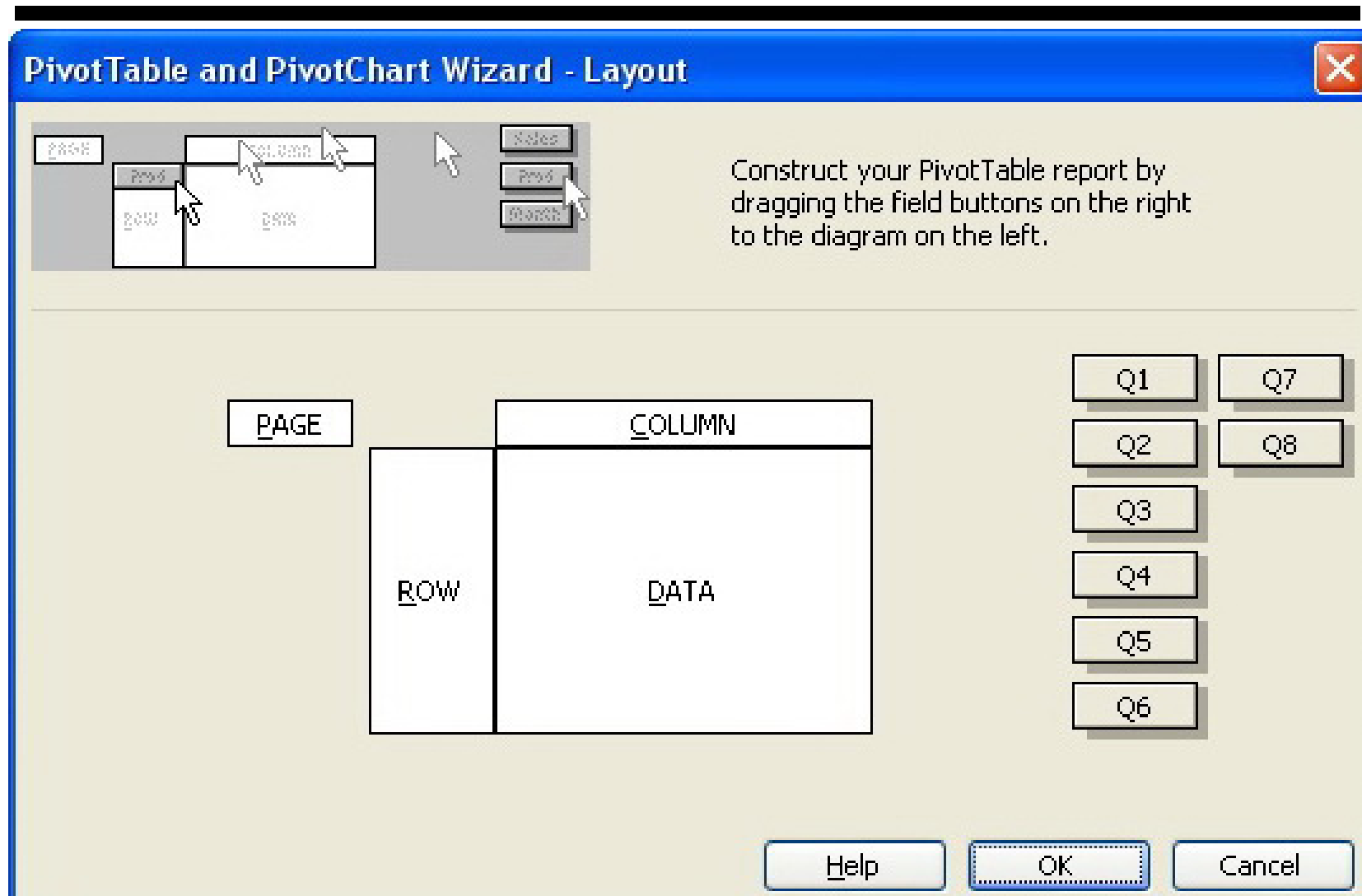
Select location; Press Layout



Including column A (Row ID) is optional.



D: Table Layout shows Field Buttons for dataset



The GOAL

Goal: to create different kinds of pivot tables from this data set. All six tables will be indexed by the answers to Q1 and Q2. Creating each table starts with the same operations: steps A-D (see the previous slides).

Table 1: Counts: two-way (slides 8-10)

Table 2: Averages: two-way (slides 11-13)

Table 3: Summary statistics: two-group (slides 14-16)

Table 4: 100% Column Table (slides 17-20)

Table 5: 100% Row Table (slides 21-22)

Table 6: Two-way table of percentages (slides 23-25)

1) Create Two-way Count Table

Use Q1 data; Index by Q1 & Q2

Table 1:

Count of Q1	Q2		
Q1	0 No	1 Yes	Grand Total
0 No	95	35	130
1 Yes	78	32	110
Grand Total	173	67	240

110 subjects answered Yes to Q1.

67 subjects answered Yes to Q2.

32 subjects answered Yes to Q1 and Yes to Q2.

95 subjects answered No to Q1 and No to Q2.

1a) Drag Q1 to Row; Q2 to Column; Q1 to Data

PivotTable and PivotChart Wizard - Layout

Construct your PivotTable report by dragging the field buttons on the right to the diagram on the left.

The diagram shows a PivotTable layout with the following structure:

PAGE	Q1	Q2	COLUMN
ROW	Sum of Q1		
	DATA		

The field buttons on the right are: Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8.

Note: Do not press OK. If you press OK, the table will show sums and the top row will be all zeroes. Go to the next slide.

Help OK Cancel

1b) Double-click on Data Field; Select Count in 'Summarize by'

PivotTable and PivotChart Wizard - Layout

Construct your PivotTable report by dragging the field buttons on the right to the diagram on the left.

PAGE	Q2	COLUMN
Q1	Sum of Q1	
ROW	DATA	

PivotTable Field

Source field: Q1

Name: Count of Q1

Summarize by:

- Sum
- Count**
- Average
- Max
- Min
- Product
- Count Nums

Buttons: OK, Cancel, Hide, Number..., Options >>

Buttons: Help, OK, Cancel

Press OK in PivotTable field window.
Press OK in PivotTable wizard.

2) Create two-way Averages: Use Q7 Data. Index by Q1 & Q2

Table 2.

Average of Q7	Q2		
Q1	0 No	1 Yes	Grand Total
0 No	66.03	67.31	66.38
1 Yes	64.83	62.84	64.25
Grand Total	65.49	65.18	65.40

Average of Q7 data for all subjects is 65.4

Average ... for those saying Yes to Q1 is 64.25

Average ... for those saying Yes to Q1 and Yes to Q1 is 62.84

2a) Drag as shown; Change Sum to Average

PivotTable and PivotChart Wizard - Layout

Construct your PivotTable report by dragging the field buttons on the right to the diagram on the left.

The diagram shows a PivotTable layout with the following fields:

- PAGE** (Field Name)
- Q1** (Field Name)
- Q2** (Field Name)
- COLUMN** (Field Name)
- DATA** (Field Name)

The **DATA** area contains a summary field labeled **Sum of Q7**.

Buttons on the right side of the wizard include Q1, Q2, Q3, Q4, Q5, Q6, Q7, and Q8.

Note: Do not press OK in PivotTable wizard. If you press OK, the table will show sums – not averages. Go to the next slide.

Buttons at the bottom: Help, OK, Cancel

2b) Double-click on Data Field; Select Average in 'Summarize by'

PivotTable and PivotChart Wizard - Layout

Construct your PivotTable report by dragging the field buttons on the right to the diagram on the left.

PAGE	Q1	Q2	COLUMN
ROW			DATA

PivotTable Field

Source field: Q7

Name: Average of Q7

Summarize by:

- Sum
- Count
- Average
- Max
- Min
- Product
- Count Nums

OK

Cancel

Hide

Number...

Options >>

Help OK Cancel

Press OK in PivotTable field window. Press OK in PivotTable wizard.

3) Create two-group table of Statistics for Q7: Index by Q1

Table 3.

Q1	Data	Total
No	Average of Q7	66.38
	Count of Q7_2	130
	StdDev of Q7_3	11.38
Yes	Average of Q7	64.25
	Count of Q7_2	110
	StdDev of Q7_3	12.21
Total Average of Q7		65.40
Total Count of Q7_2		240
Total StdDev of Q7_3		11.79

65.4 is the overall average of [the answers to] Q7.

The average of [the answers to] Q7 for those who said Yes to Q1 was 64.25

3a) Drag Q1 to Row. Drag Q7 to body three times

PivotTable and PivotChart Wizard - Layout

Construct your PivotTable report by dragging the field buttons on the right to the diagram on the left.

Table Structure:

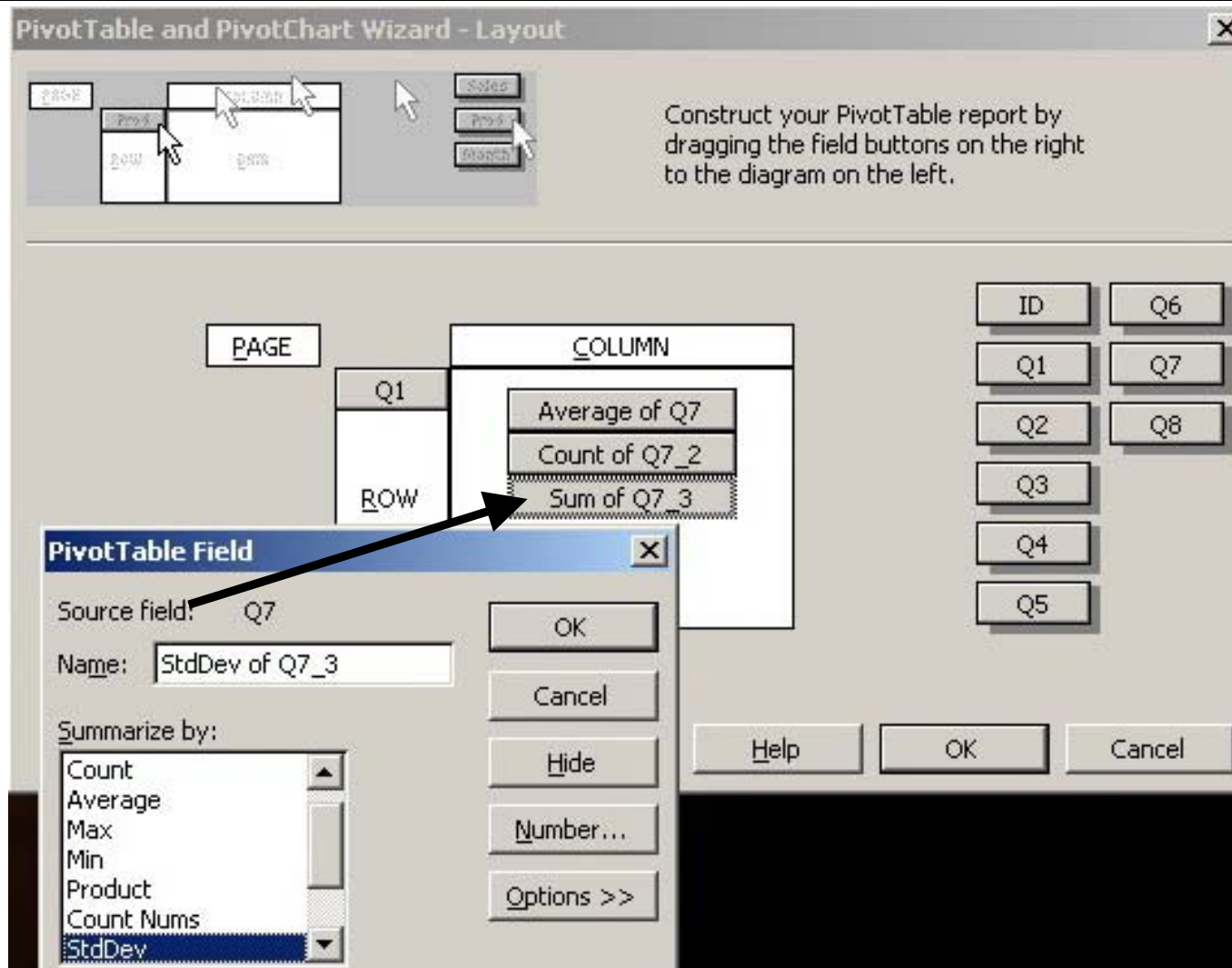
PAGE	COLUMN
ROW	Q1
	Sum of Q7
	Sum of Q7_2
	Sum of Q7_3

Field Buttons: Question, Q6, Q7, Q8, Q3, Q4, Q5

Buttons: Help, OK, Cancel

Note: Do not press OK in PivotTable wizard. If you press OK, the table will show sums. Go to the next slide.

3b) Summarize by Average, Count and Std. Deviation



4) Create 100% Column Table; Index on Q1 and Q2.

Table 4

Count of Q2	Q2		
Q1	0 No	1 Yes	Grand Total
0 No	55%	52%	54%
1 Yes	45%	48%	46%
Grand Total	100%	100%	100%

Columns are 100% wholes; Rows are parts.

46% of all subjects **said Yes to Q1.**

48% of [subjects who said Yes to Q2] **said Yes to Q1.**

55% of [subjects who said No to Q2] **said No to Q1.**

4a: Drag as show; Change Sum to Count

PivotTable and PivotChart Wizard - Layout

Construct your PivotTable report by dragging the field buttons on the right to the diagram on the left.

Double-click on Sum of Q2 to get PivotTable Field window.
Select "Options": Don't press "OK"

Help OK Cancel

4b: Select “Options>>”; In Show data, select “% of column”

The image shows two overlapping dialog boxes from Microsoft Excel 2003. The background window is the 'PivotTable and PivotChart Wizard - Layout' dialog, which contains a diagram for constructing a PivotTable report by dragging field buttons (PAGE, ROW, COLUMN, DATA) to a grid. The foreground window is the 'PivotTable Field' dialog, which is configured for the source field 'Q2'. The 'Name' is 'Count of Q2'. Under 'Summarize by', 'Count' is selected. Under 'Show data as', the dropdown menu is open, and '% of column' is selected. An arrow points to the 'Options >>' button in the PivotTable Field dialog.

When done, press OK in PivotTable field window.
Press OK in PivotTable wizard.

5) Create 100% Row Table; Index on Q1 and Q2.

Table 5.

Count of Q2	Q2		
Q1	0 No	1 Yes	Grand Total
0 No	73%	27%	100%
1 Yes	71%	29%	100%
Grand Total	72%	28%	100%

Rows are 100% wholes; Columns are parts.

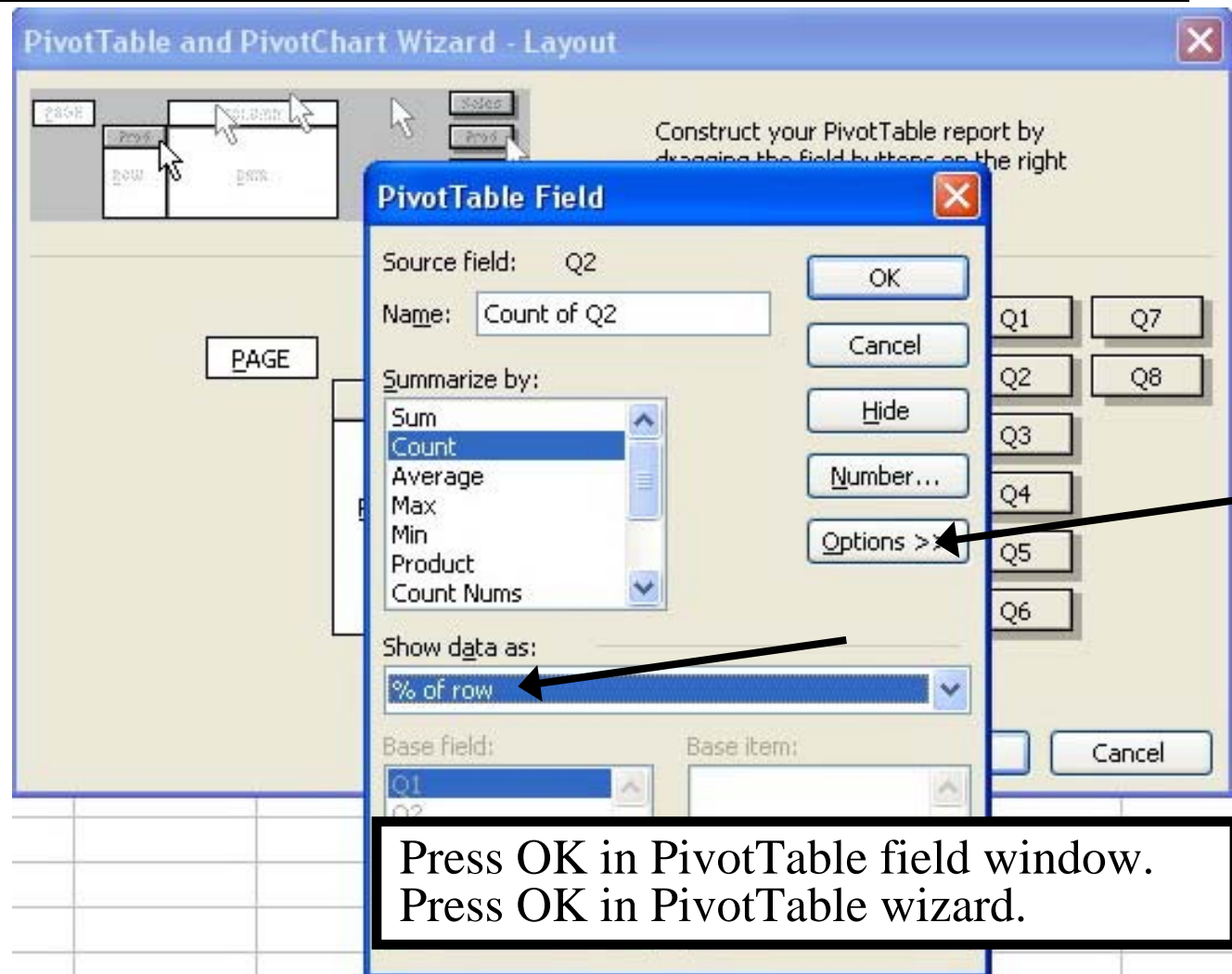
28% of all subjects **said Yes to Q2.**

29% of subjects who said Yes to Q1 **said Yes to Q2.**

73% of subjects who said No to Q1 **said No to Q2.**

5b) Select “Options>>”; In Show data, select “% of row”

The first step (5a) for Table 5 is the same as the first step (4a) for Table 4.



6) Create Two Way Table of Q3; Index on Q1 and Q2.

Table 6.

Average of Q3	Q2			
Q1	No 0	Yes 1	Grand Total	
No 0	81%	71%	78%	
Yes 1	37%	34%	36%	
Grand Total	61%	54%	59%	

Q3 is the common part. Rows and columns are wholes
59% of all subjects **said Yes to Q3.**

36% of subjects who said Yes to Q1 **said Yes to Q3.**

54% of subjects who said Yes to Q2 **said Yes to Q3.**

34% of those who said Yes to Q1 and Q2 **said Yes to Q3.**

6a) Drag Q3 to Data area; Index on Q1 (row) and Q2 (col).

PivotTable and PivotChart Wizard - Layout

Construct your PivotTable report by dragging the field buttons on the right to the diagram on the left.

The diagram shows a PivotTable layout with the following structure:

PAGE	Q2	COLUMN
Q1	Sum of Q3	
ROW	DATA	

The list of fields on the right includes: Question, Q6, Q1, Q7, Q2, Q8, Q3, Q4, Q5.

Buttons: Help, OK, Cancel

6b) Change Sum to Average

PivotTable and PivotChart Wizard - Layout

Construct your PivotTable report by dragging the field buttons on the right to the diagram on the left.

PAGE	Q2	COLUMN
Q1		Sum of Q3

Question Q6
Q1 Q7
Q2 Q8
Q3
Q4

PivotTable Field

Source field: Q3

Name: Average of Q3

Summarize by:

- Sum
- Count
- Average
- Max

OK
Cancel
Hide
Number...

Help OK Cancel

Press OK in PivotTable field window.
Press OK in PivotTable wizard.