# Pareto Chart

A **Pareto chart** combines a column chart and a line graph. The Pareto principle states that, for many events, roughly 80% of the effects come from 20% of the causes. In this example, we will see that 80% of the complaints come from 2 out of 10 (20%) complaint types.

	B4	▾	fx	65		
	A	B	C	D	E	F
1	Restaurant Complaints					
2						
3	Complaint	Count				
4	Food is tasteless	65				
5	Wait time	109				
6	Unfriendly staff	12				
7	Not clean	30				
8	Overpriced	789				
9	Too noisy	27				
10	Food not fresh	9				
11	Small portions	621				
12	No atmosphere	45				
13	Food is too salty	15				
14						
15						

1. First, sort your data in descending order. To achieve this, click a number, on the Data tab, click ZA.
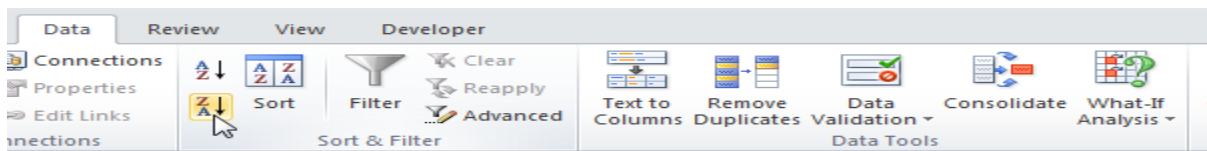
2. Calculate the cumulative count. Enter the formula shown below into cell C5 and drag the formula down.

	C5	▾	fx	=C4+B5		
	A	B	C	D	E	F
1	Restaurant Complaints					
2						
3	Complaint	Count	Cumulative Count			
4	Overpriced	789	789			
5	Small portions	621	1410			
6	Wait time	109	1519			
7	Food is tasteless	65	1584			
8	No atmosphere	45	1629			
9	Not clean	30	1659			
10	Too noisy	27	1686			
11	Food is too salty	15	1701			
12	Unfriendly staff	12	1713			
13	Food not fresh	9	1722			
14						
15						

3. Calculate the cumulative %. Enter the formula shown below into cell D4 and drag the formula down.

D4   *fx* =(C4/C13)*100

Restaurant Complaints

Complaint	Count	Cumulative Count	Cumulative %
Overpriced	789	789	45.8
Small portions	621	1410	81.9
Wait time	109	1519	88.2
Food is tasteless	65	1584	92.0
No atmosphere	45	1629	94.6
Not clean	30	1659	96.3
Too noisy	27	1686	97.9
Food is too salty	15	1701	98.8
Unfriendly staff	12	1713	99.5
Food not fresh	9	1722	100.0

Note: Cell C13 contains the total number of complaints. When we drag this formula down, the absolute reference (C13) stays the same, while the relative reference (C4) changes to C5, C6, C7, etc.

4. Select the data in column A, B and D. To achieve this, hold down CTRL and select each range.

D3   *fx* Cumulative %

Restaurant Complaints

| Complaint	Count	Cumulative Count	Cumulative %
Overpriced	789	789	45.8
Small portions	621	1410	81.9
Wait time	109	1519	88.2
Food is tasteless	65	1584	92.0
No atmosphere	45	1629	94.6
Not clean	30	1659	96.3
Too noisy	27	1686	97.9
Food is too salty	15	1701	98.8
Unfriendly staff	12	1713	99.5
Food not fresh	9	1722	100.0

5. On the Insert tab, click Column and select **Clustered Column**.
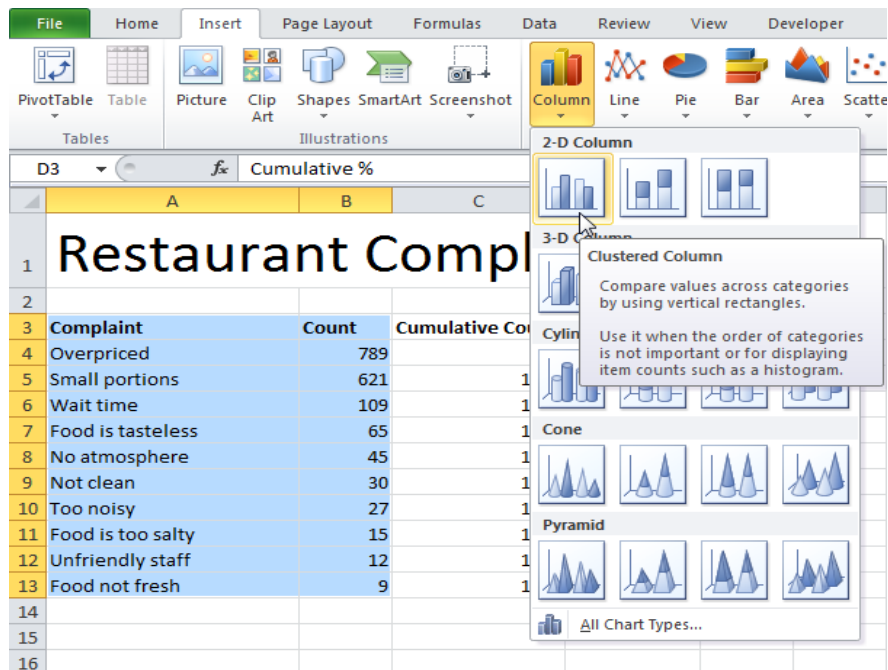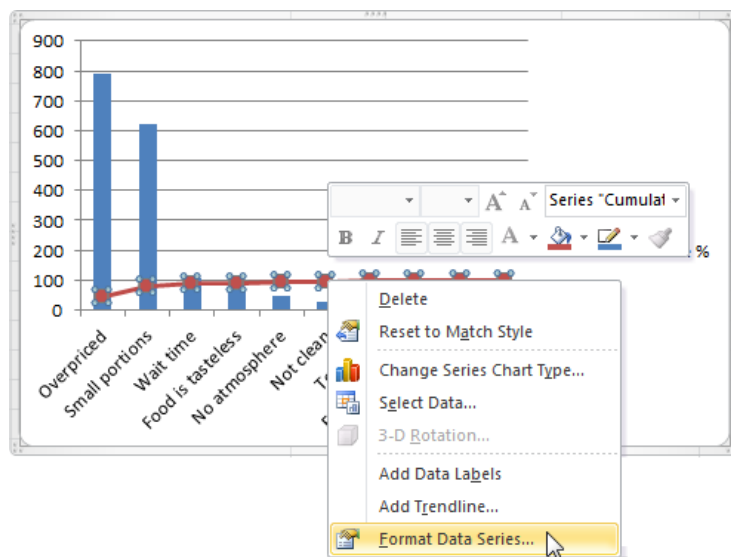
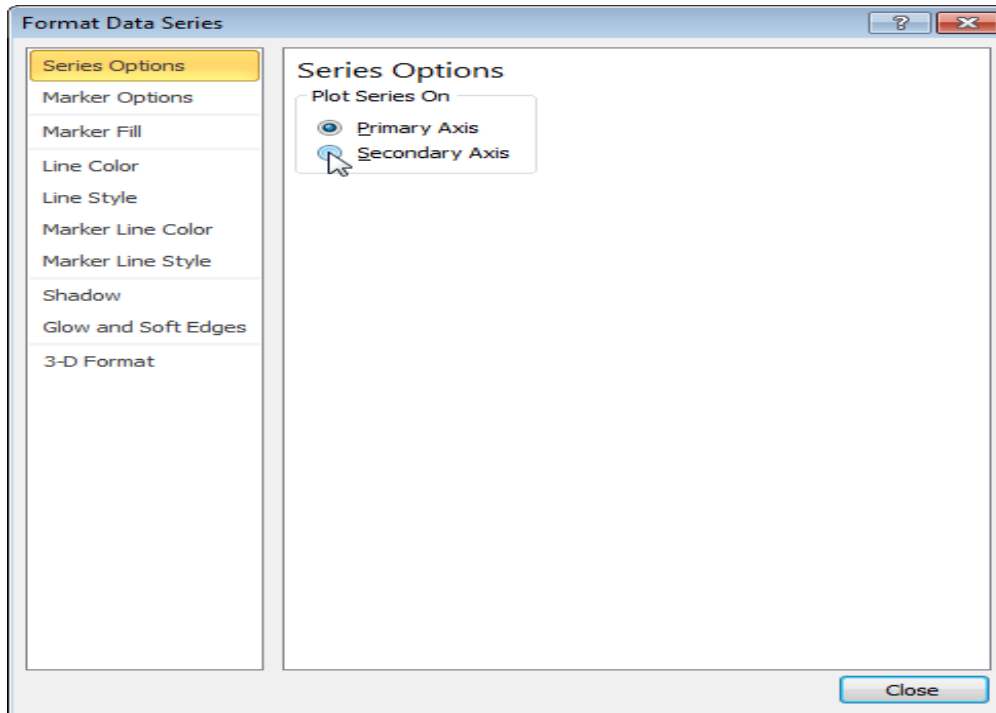6. Right click on the red bars (cumulative %) and click Change Series Chart Type...
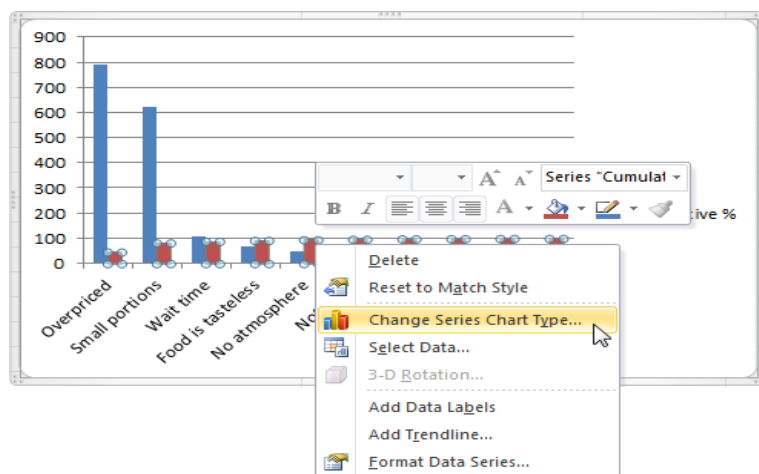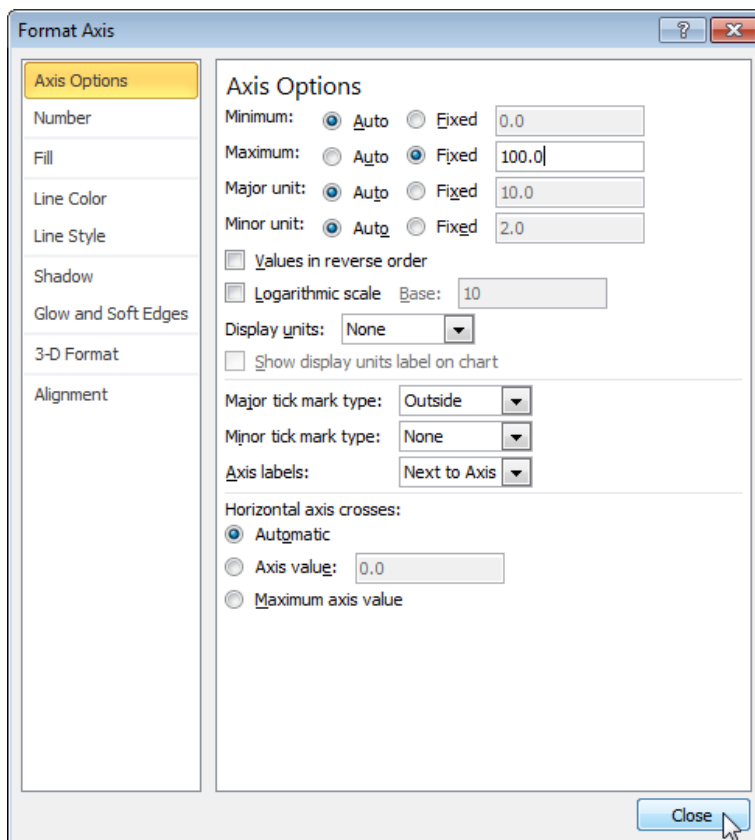

7. Select Line with Markers.
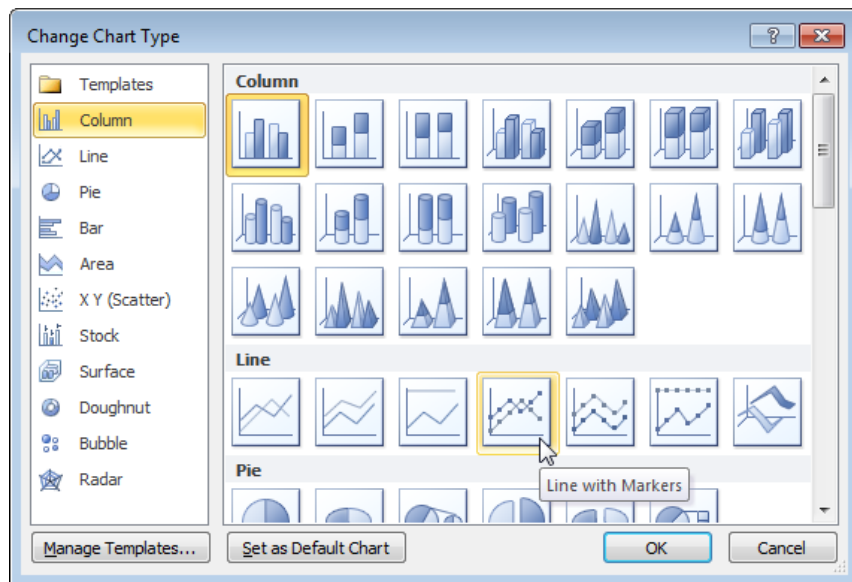
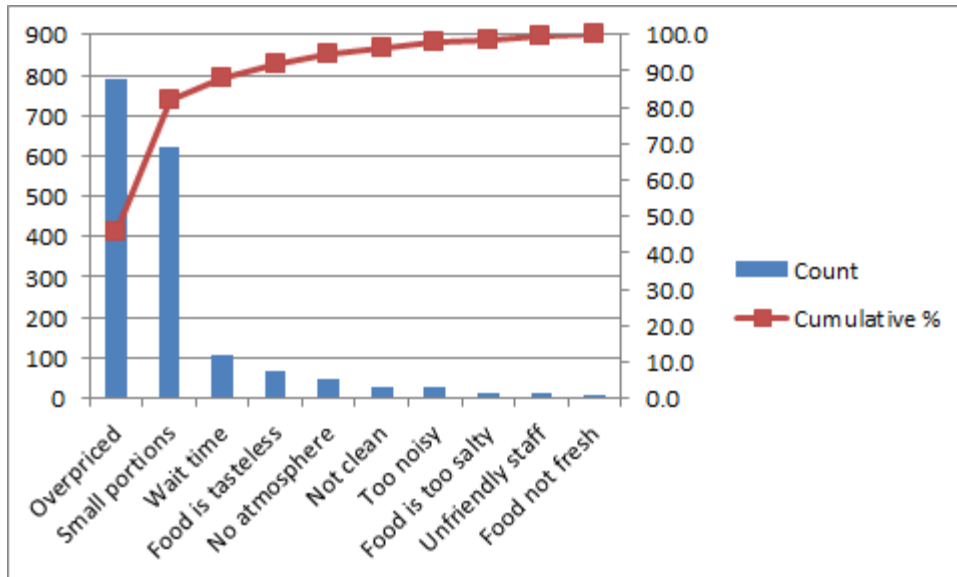8. Right click on the red line and click Format Data Series...

9. Select Secondary Axis.

10. Right click the percentages on the chart, click Format Axis, set the Maximum to 100 and click Close.

Result:

Conclusion: the **Pareto chart** shows that 80% of the complaints come from 20% of the complaint types (Overpriced and Small portions). In other words: the Pareto principle applies.