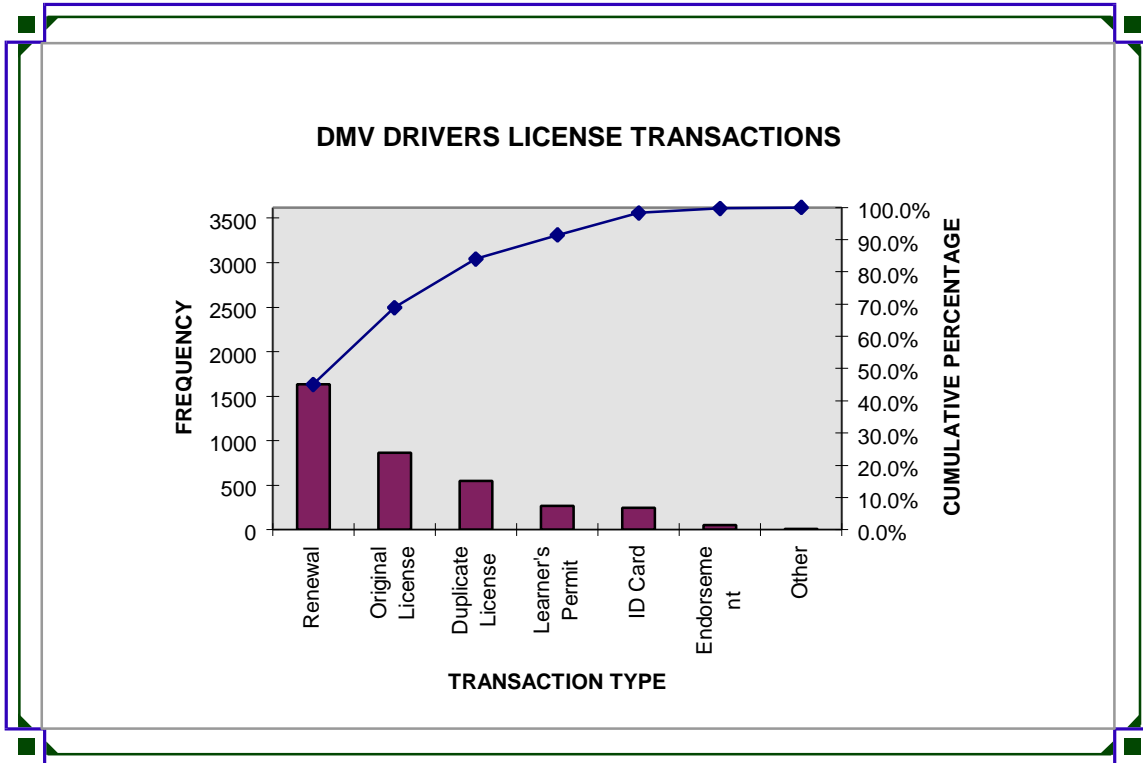


## PARETO CHART



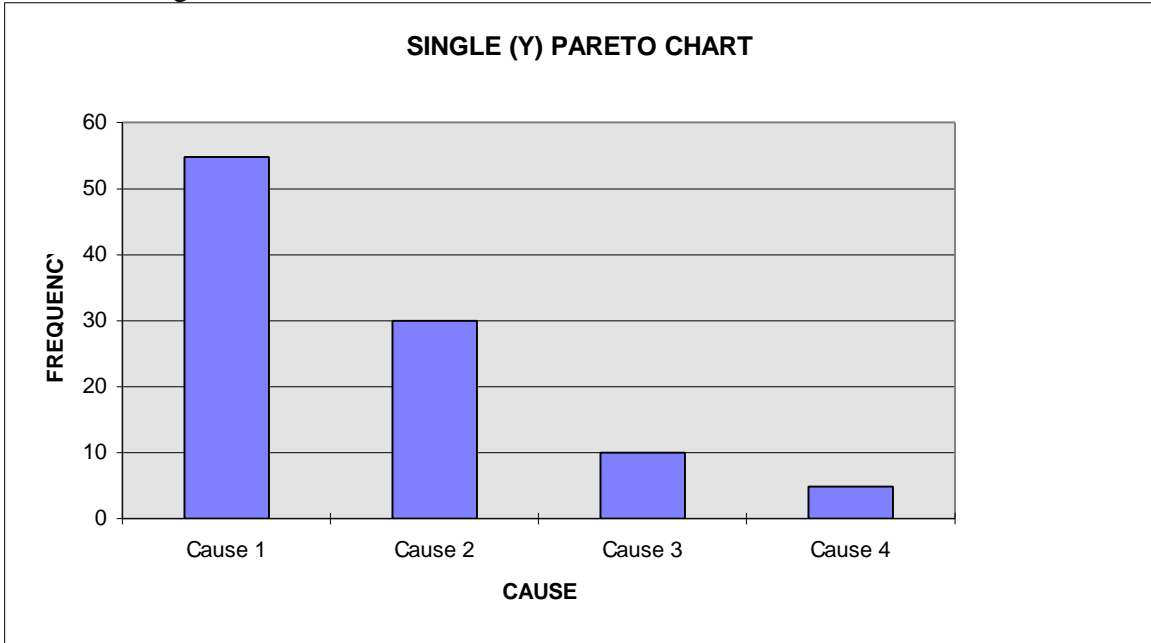
### Purpose

A **pareto chart** is a form of bar chart ranking data in descending order. It is used to identify which problems, causes, or processes represent the greatest potential for improvement.

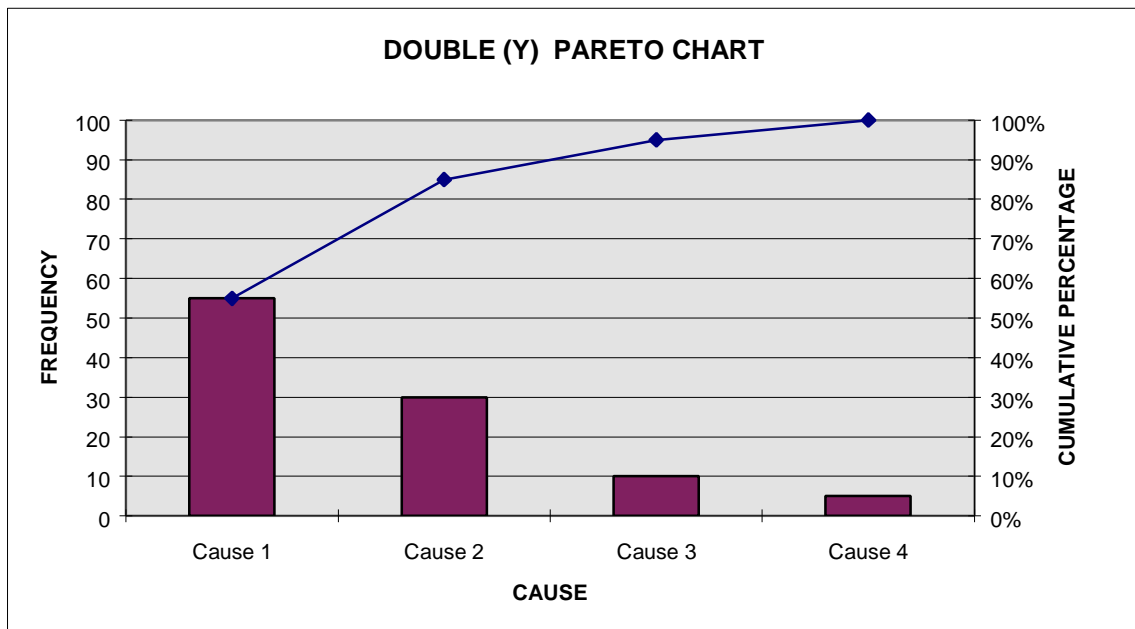
A **pareto chart** quantifies either a problem or components of a problem. It can be used to measure the impact of process changes. **Pareto charts** can be compared before and after process changes.

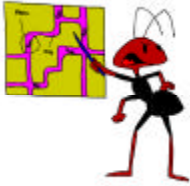
**Pareto charts** take on two different forms depending on what data needs to be displayed and the relationship of that data.

*Single (Y) Pareto Chart*- It shows the relative importance of each component ranked in order from highest to lowest.



*Double (Y) Pareto Chart*-This chart shows the relative importance of each component using a scale on the chart that displays the total frequency on the (Y) axis. It also shows the cumulative percentage of frequencies across the chart. This percent scale helps determine where to place corrective action.





### Process

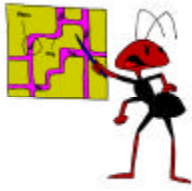
1. Determine the sources or components of a problem. These items may be the result of data already available or through effective brainstorming.
2. Gather existing available data on all components or problems.
3. Decide on a standard for comparison of measures. These may be frequency of occurrence, financial impact, time delays involved, or other measures.
4. Select a time period to be studied. This period of study may be an hour, a day, a month, or year.
5. Gather the data desired based on standards agreed upon over the time periods selected.
6. Compare the data collected for each category.



### Example

1. Components of drivers license transactions:

Renewals	Originals
Duplicates	Permits
ID Cards	Other
Endorsements	
2. Gather existing data:  
Data not available for time period of planned study.
3. Comparison Measures:  
Data will be gathered on the frequency and duration of transactions.
4. Time Period:  
Period selected will be one week.
5. Gather Data:  
Teams sent to field to gather selected data at a sampling of all sized offices.
6. Compare Data:  
Data compared to ensure collection methods were the same for all personnel doing the sampling.



**Process**

7. List data categories on the left side of a worksheet. Next to the categories list the impact or frequencies of the categories listed. Rank the categories in descending order from largest to smallest. Construct a chart to display the categories. (In the example, only the top three categories were used. Normally all categories are used.)

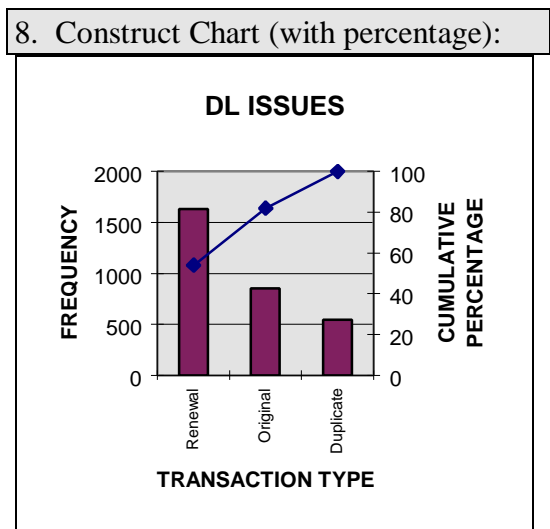
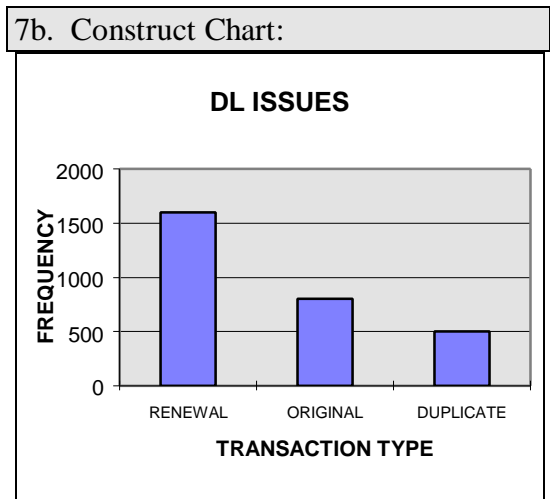
8. If cumulative percentages will add understanding to the chart add them as a second (Y) axis.



**Example**

7a. List Categories and Frequency:  
Using only top three categories-

Renewals	1631
Originals	800
Duplicates	546





## Key Points

- Make sure the chart is labeled accurately and completely.
- A **pareto chart**, when analyzed correctly, will allow emphasis to be placed in the correct areas. Don't spend all your time trying to fix something that represents a small percentage of all the issues being considered.
- A standard statement about **pareto charts** says "80% of all problems come from 20% of all the causes".

THIS PAGE LEFT INTENTIONALLY BLANK