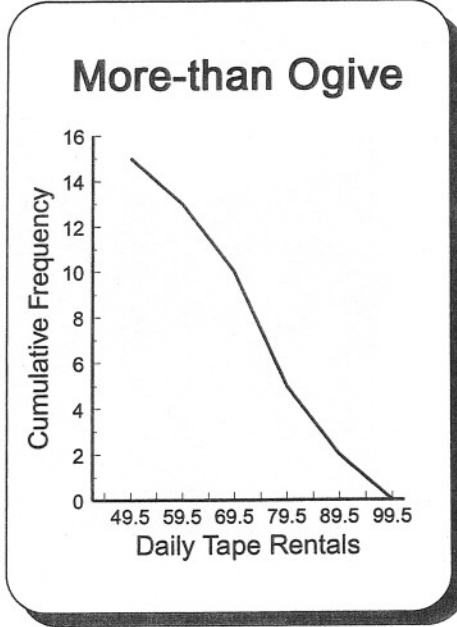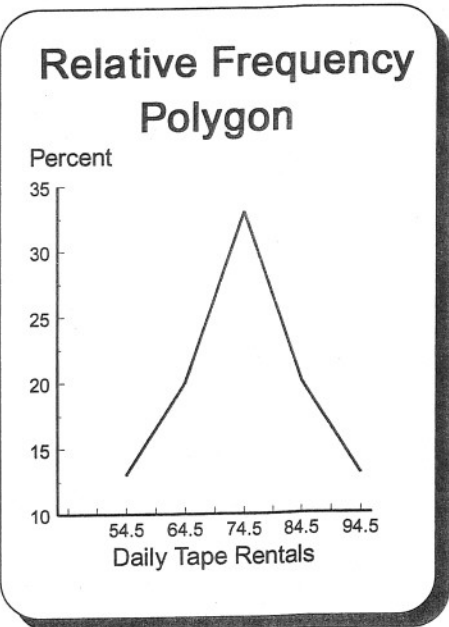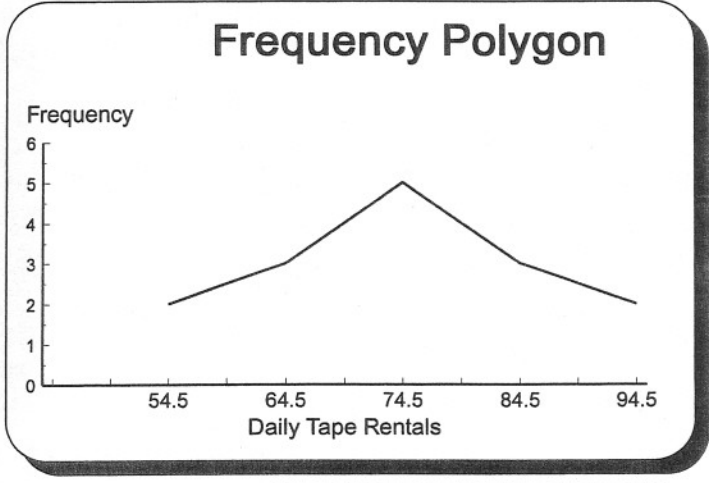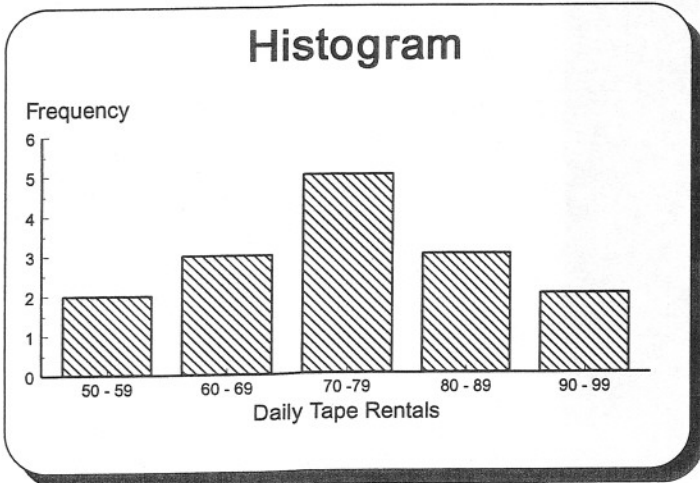## H. Graphing frequency distributions

1. A **histogram** is a vertical bar chart depicting a frequency distribution. The x-axis is for the variable being measured and the y-axis is for the frequency.

2. A **frequency polygon** (a many-sided figure) is a line graph depicting a frequency distribution.

   a. Each frequency is depicted at the midpoint of the class it represents.

   b. The midpoint is the stated or real class limits added together and divided by two. Both yield the same answer.

$$\frac{X_1+X_2}{2} = \frac{50+59}{2} = 54.5$$

3. A **relative frequency polygon** is similar to a frequency polygon except it has the relative frequency of each class on the y-axis.

4. **Cumulative frequency distributions** (Ogives) measure the accumulation of frequencies above and below each real class limit.

   a. A **more-than cumulative frequency distribution** begins with the number of frequencies that are above the real lower limit of the lowest class. The answer is equal to total frequency. It is located near the top of the y-axis above the lower real class limit. Each successive class limit is associated with a smaller and smaller number of frequencies being above the successively higher class limits. The final value on the y-axis will be zero because none of the outcomes can be higher than the upper limit of the upper class. Cumulative frequency distributions can also be constructed on a relative basis with the cumulative frequency percentage graphed on the y-axis.

   b. A **less-than cumulative frequency distribution** is the complement of the more-than frequency distribution. Its y-axis value at origin is zero, and at the upper class limit, y will be equal to total frequency.

Histogram

Frequency / Daily Tape Rentals

Frequency Polygon

Frequency / Daily Tape Rentals

Relative Frequency Polygon

Percent / Daily Tape Rentals

More-than Ogive

Cumulative Frequency / Daily Tape Rentals

Less-than Ogive

Cumulative Relative Frequency / Daily Tape Rentals

Note the y-axis scale.

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