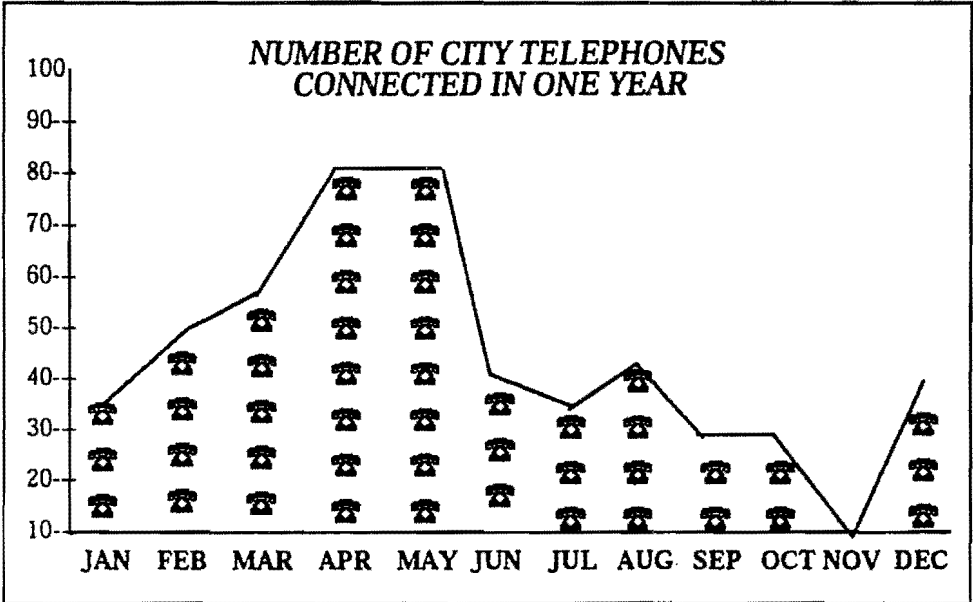


SECTION 6



STATISTICS



Introduction to STATISTICS

The word "statistics" is not only a difficult word to say, but it is also a word that sometimes frightens students before they can even begin to understand what it really means. You might have heard the phrase, "Give me the stats on this!" "Stats" is just a short way of saying "statistics."

In math, "statistics" means "a collection of facts patterned in an interesting way."

Usually, statistics are patterned in graphs. Graphs show visually the interesting relationships of numbers to each other. The numbers can then be analyzed. When you see how the numbers relate to each other, "statistics" have meaning--and are even fun!

PRINCIPLE #1

STATISTICS ARE FACTS WHICH CAN BE COMPARED AND ANALYZED.

There are several kinds of graphs. In this section, you will learn about each one of them.

EXAMPLE

These statistics can be analyzed:

During a 24-hour period, Johnny usually sleeps seven hours. He goes to school for four hours. He takes out one hour for each of his three meals. He studies for two hours. He watches TV for three hours, and the rest of his time is taken up in working for his father and playing with his friends.

Learning Exercise

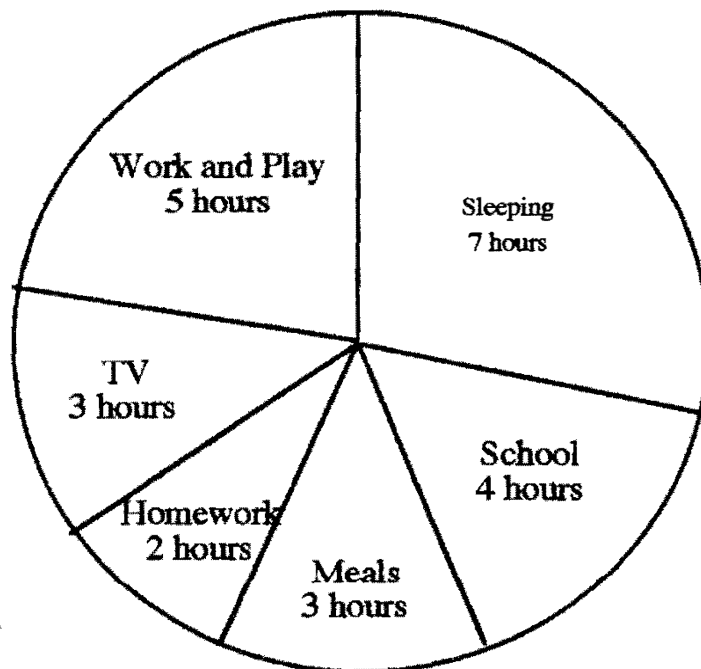
Create a list of facts which can be analyzed.

PRINCIPLE #2

**FACTS CAN BE COMPARED AND
ANALYZED BY USING A
CIRCLE GRAPH.**

EXAMPLE

This Circle Graph shows how Johnny usually spends his day:



Notice that the total number of hours in the circle's divisions equal the 24-hour day, and that the divisions are different sizes according to the number of hours.

Learning Exercise

Using your previous list of statistics, create a circle graph.

PRINCIPLE #3

FACTS CAN BE SHOWN IN A CIRCLE GRAPH TO SHOW RATIOS.

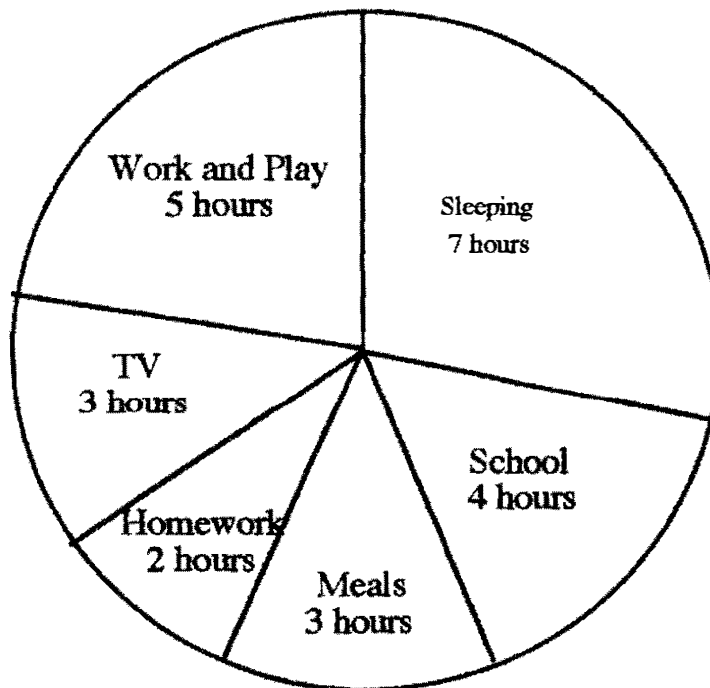
EXAMPLE:

This Circle Graph shows how Johnny usually spends his day.

Find the ratio of the hours Johnny worked, played and slept, compared to the number of hours in a day:

$$5 \text{ hours} + 7 \text{ hours} = \underline{12 \text{ hours}}$$

$$\frac{\text{hours work, play and sleep}}{24 \text{ hours total in the day}} =$$



Thus, one-half of Johnny's day is spent in work, play and sleep.

Learning Exercise

Create two ratio comparisons from your own circle graph.

Can you answer these questions?

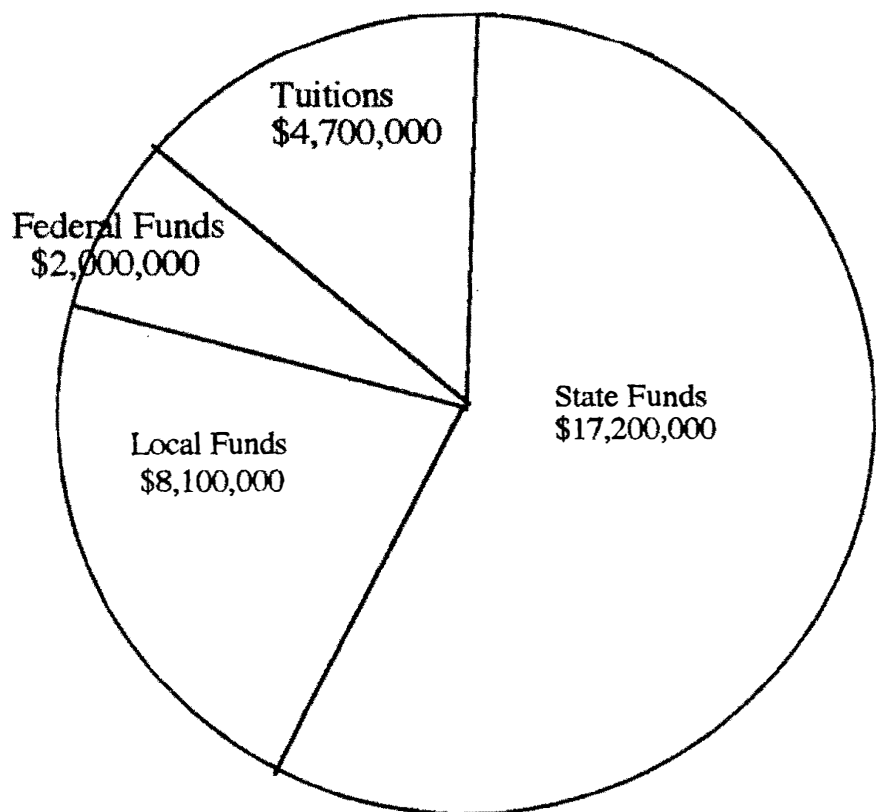
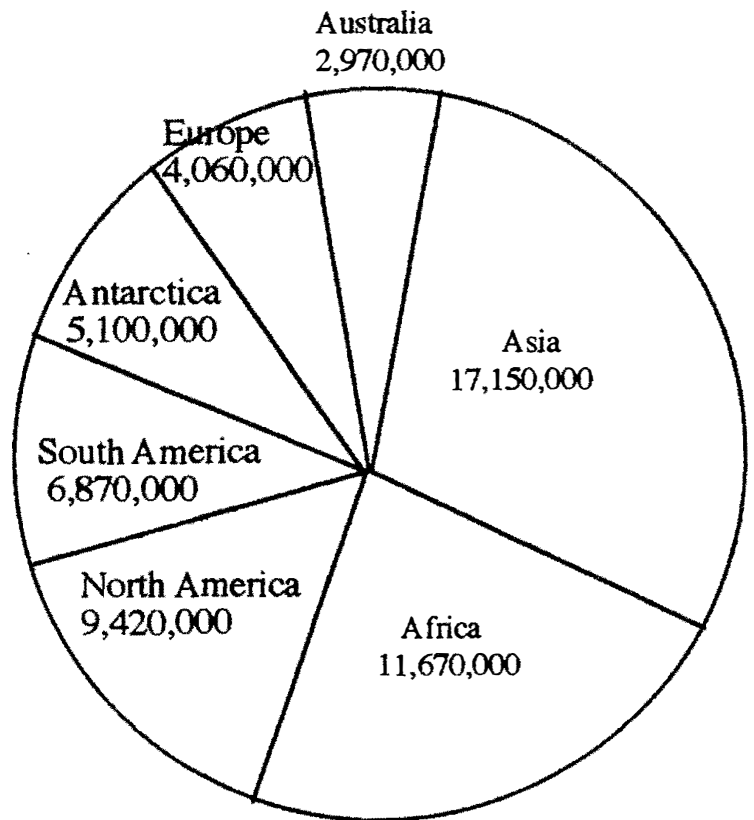
(Try to remember without looking back!)

The circle graph shows the land area of each of the seven continents in square miles.

1. Find the ratio of the land area of South America to the land area of North America.
2. Find the total land area of the seven continents.
3. Find the percent of the land area of Australia to the total land area of the seven continents.

The circle graph shows sources of income for a state community college which has a total budget of \$32,000,000.

1. What source provides the least amount of income?
2. What is the ratio of federal funds to the total budget?
3. What is the ratio of federal funds to state funds?

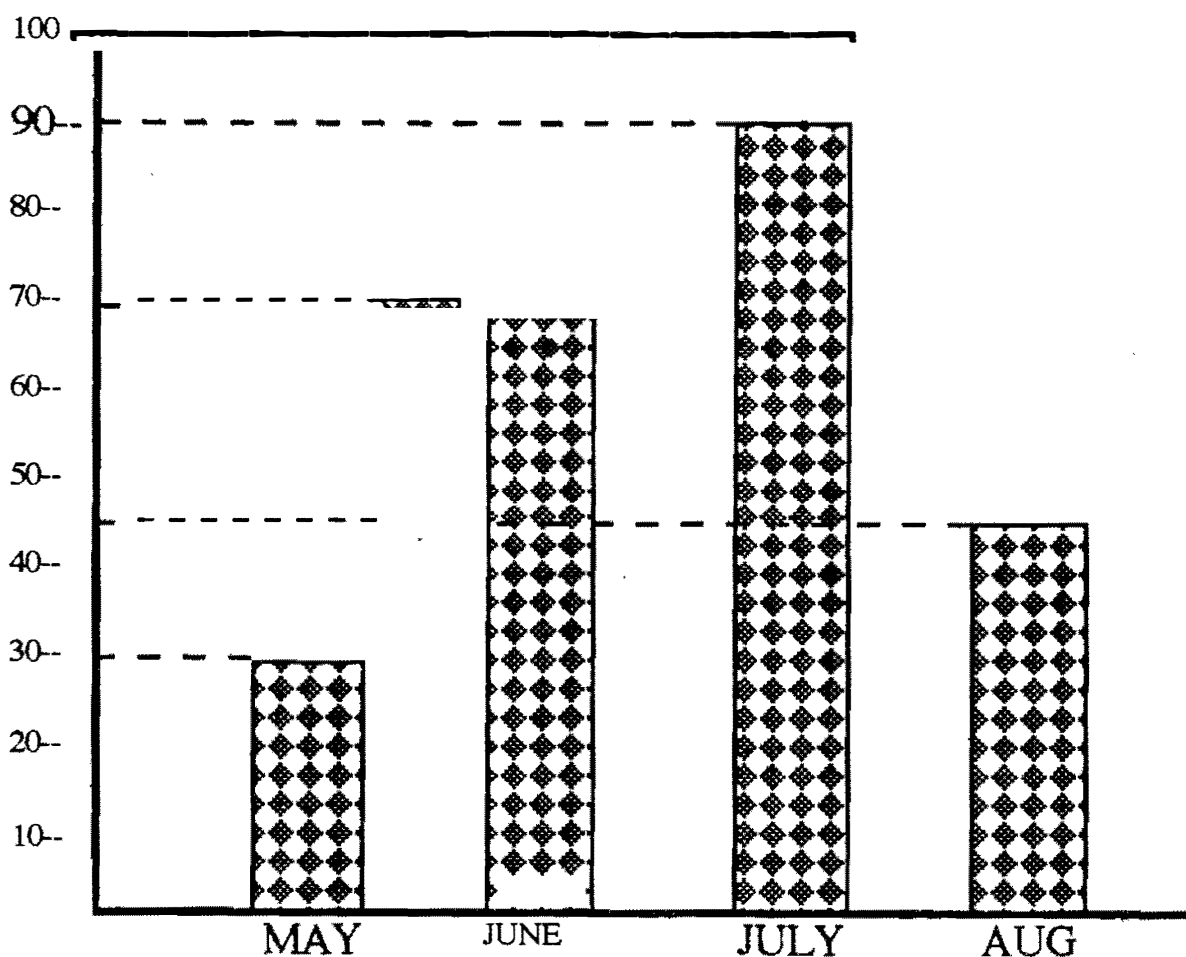


PRINCIPLE #4

**FACTS CAN BE COMPARED BY USING
HORIZONTAL OR VERTICAL BARS,
AND THIS
COMPARISON IS CALLED
A BAR GRAPH.**

EXAMPLE

***NON-FICTION BOOKS CHECKED OUT FROM THE LIBRARY DURING
SUMMER MONTHS***



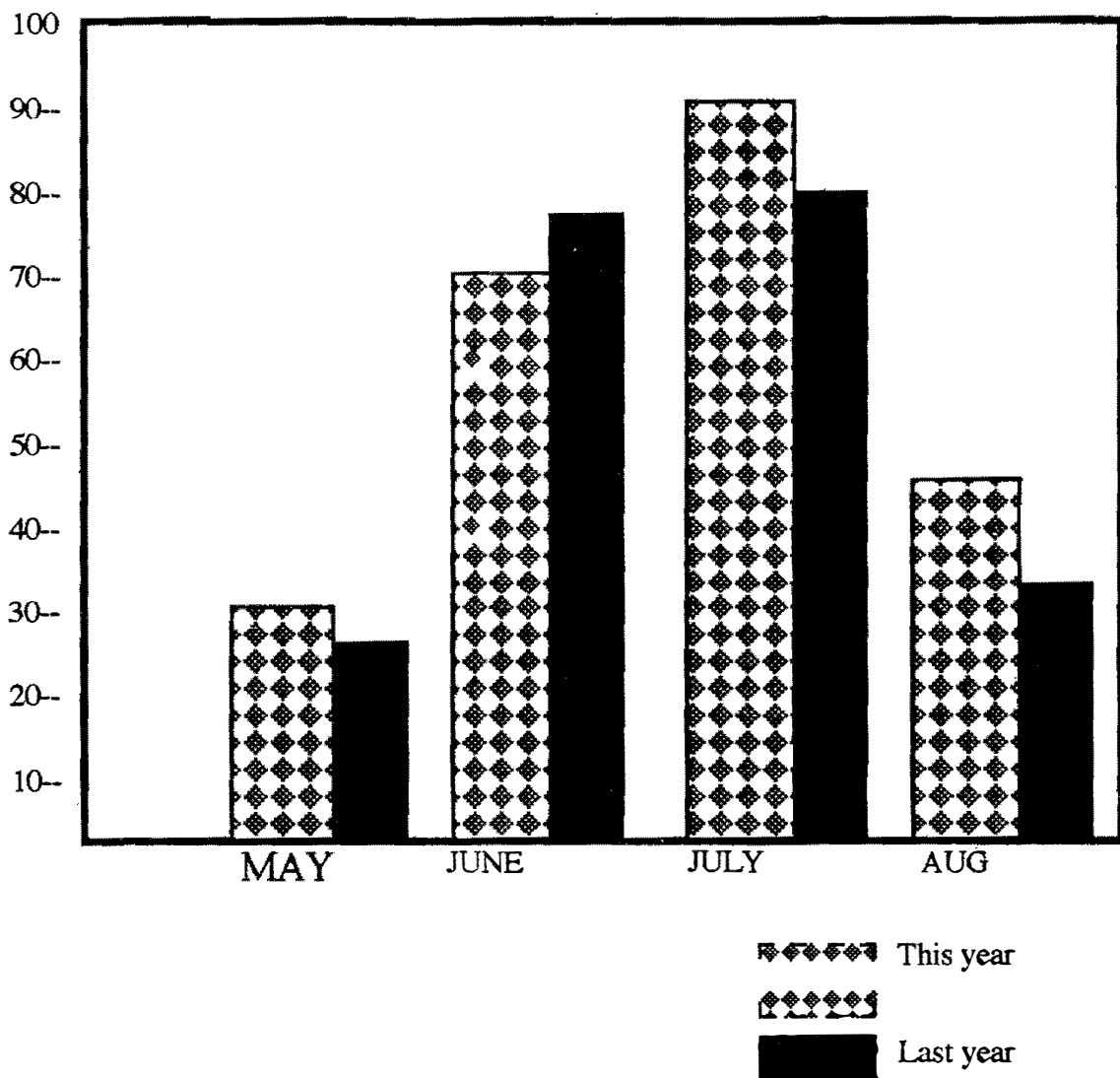
Learning Exercise Create your own
bar graph.

PRINCIPLE #5

**FACTS TO BE
COMPARED CAN BE
SHOWN ON A DOUBLE BAR
GRAPH.**

EXAMPLE

***NON-FICTION BOOKS CHECKED OUT FROM THE LI-BRARY DURING
SUMMER MONTHS
FOR TWO YEARS***



Learning Exercise

Create your own double-bar graph.

Can you answer these questions?

(Try to remember without looking back!)

The bar graph shows the population of the European Continent.

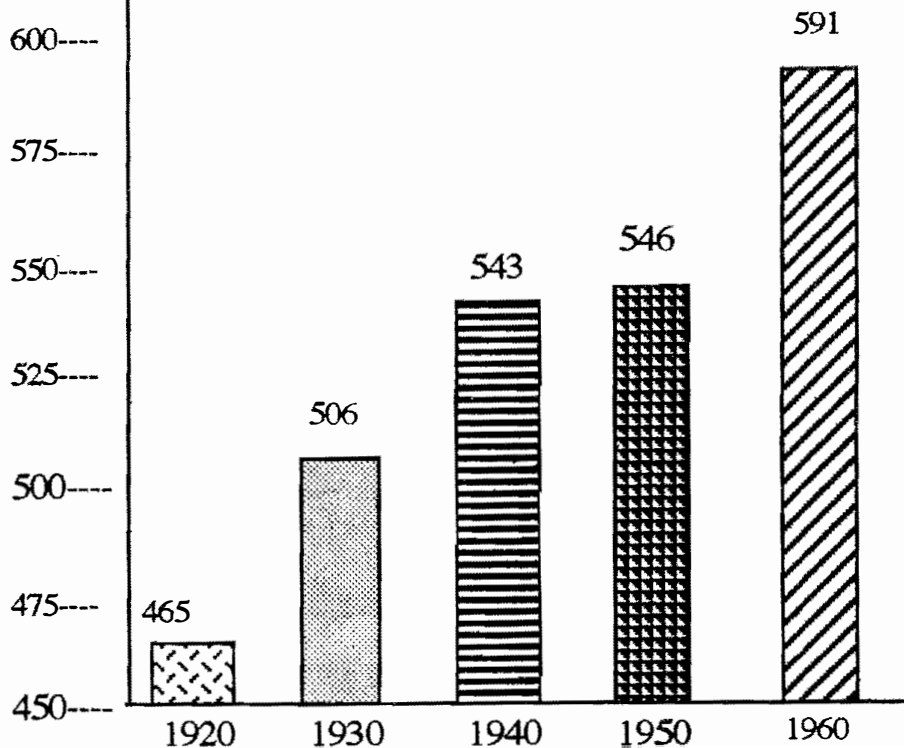
1. What was the percentage increase of population between 1940 and 1950?

2. Between which 10-year period was there the greatest percentage increase? What

was the percentage?

3. What was the percentage increase during the 40 year period?

Population in millions, European Continent.



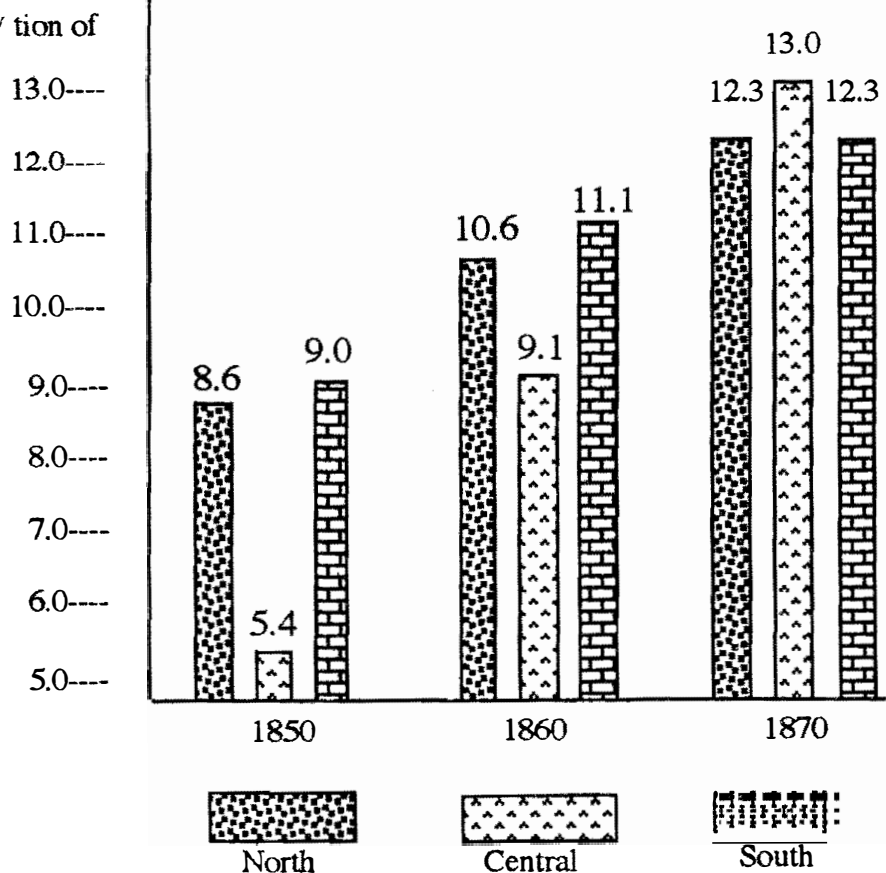
The bar graph shows the population of the U.S. during the Civil War era.

1. What was the U.S. population growth by percentage between 1850 and 1870?

2. What was the percentage of total population for each region in 1860?

3. What was the percentage increase for each region between 1850 and 1870?

U.S. population by region in millions.

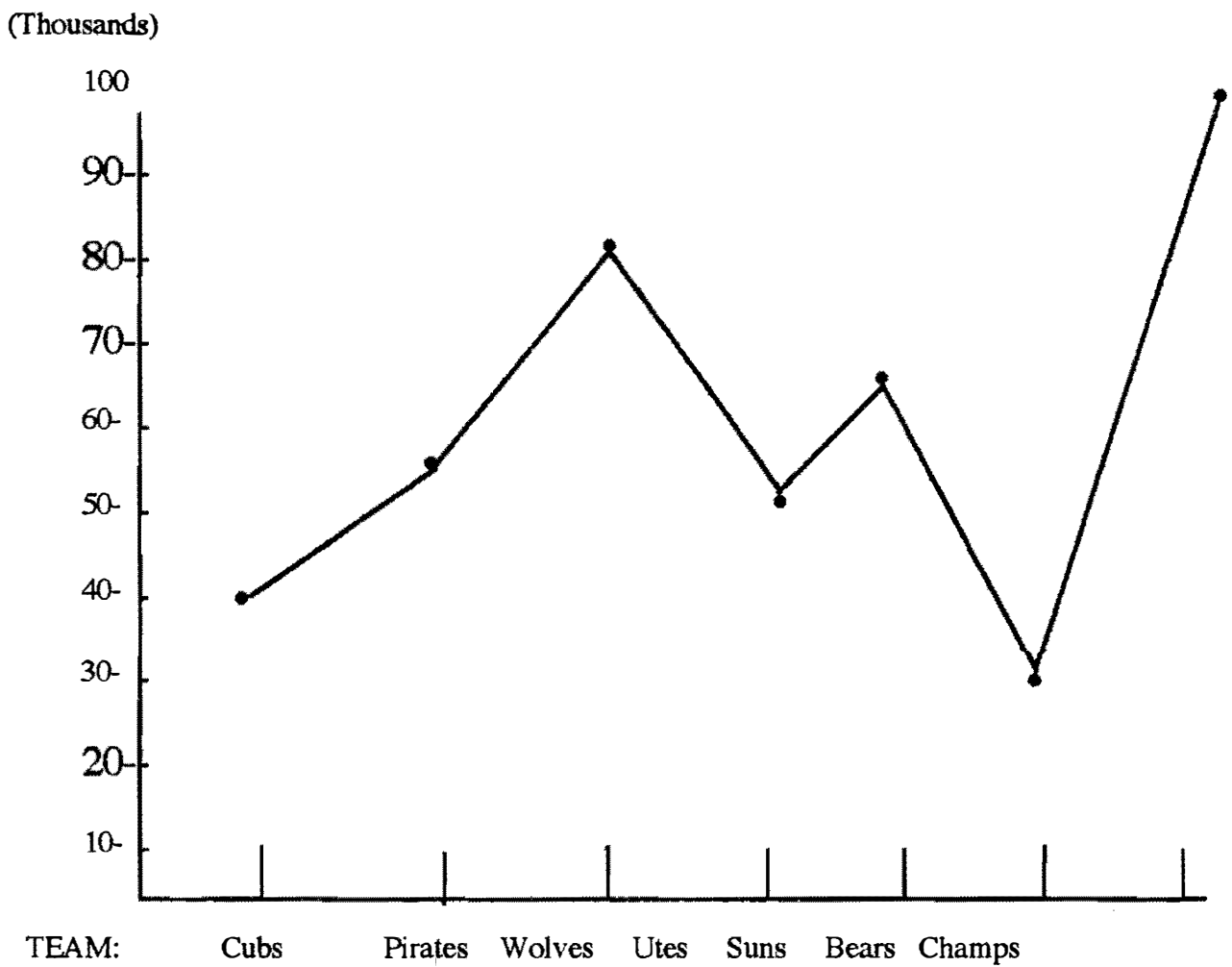


PRINCIPLE #6

**ANOTHER WAY TO SHOW FACTS IS
BY USING A BROKEN-LINE GRAPH.**

EXAMPLE

TICKETS SOLD FOR SEASON COLLEGE FOOTBALL (STATE-WIDE)



Learning Exercise

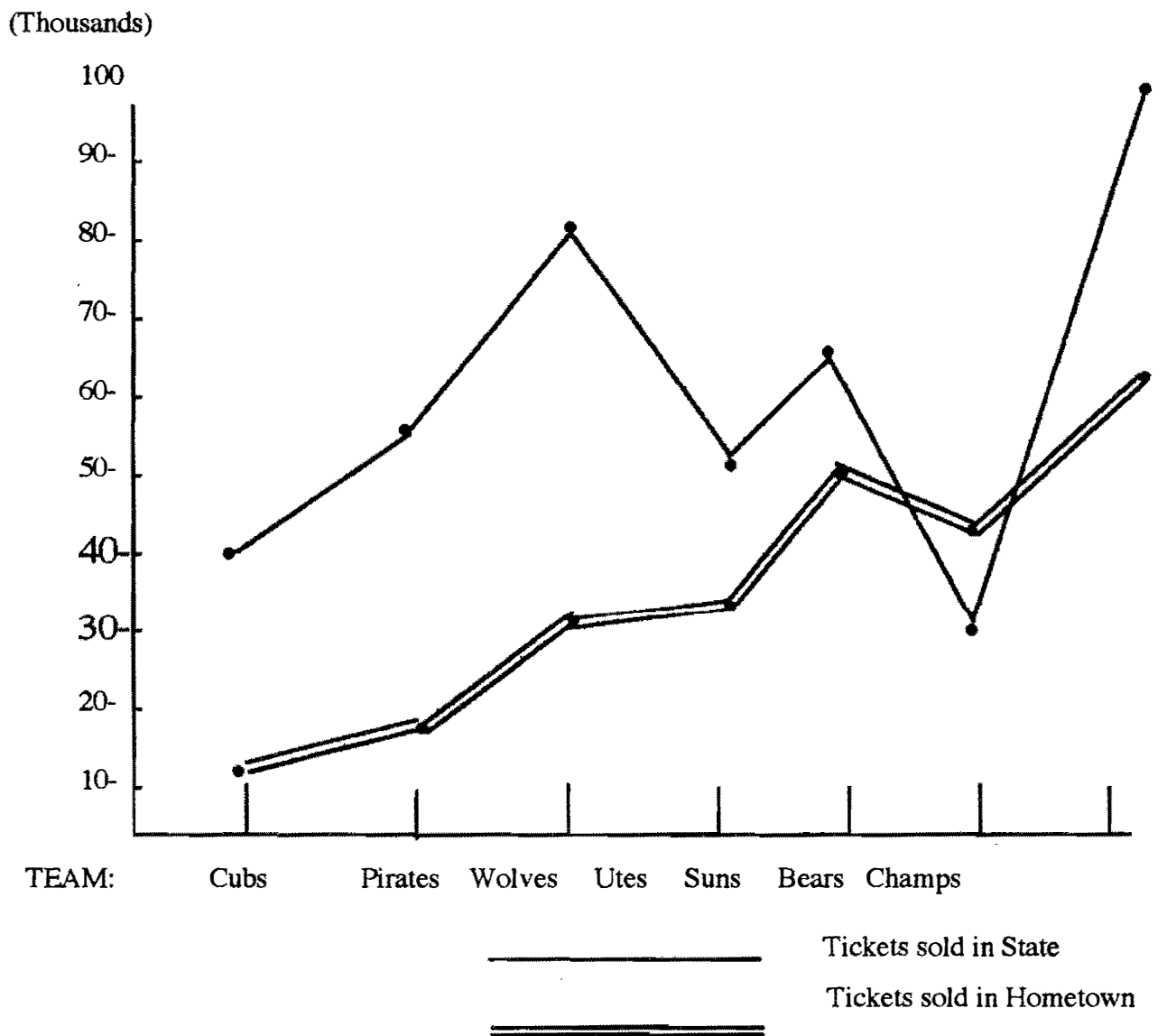
Create your own "broken-line graph."

PRINCIPLE #7

**FACTS TO BE COMPARED CAN
BE SHOWN WITH TWO BROKEN-
LINE GRAPHS.**

EXAMPLE

TICKETS SOLD FOR SEASON COLLEGE FOOTBALL



Learning Exercise

Create your own graph, using two broken-lines.