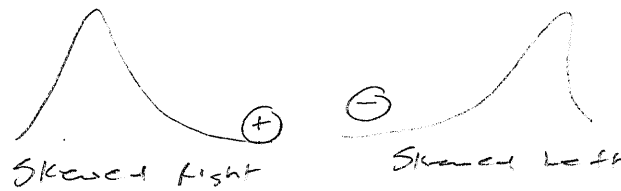


FST NOTES 1-3

TOPIC: Creating and Using Histograms.

GOAL

Examine distributions as a whole using histograms.



SPUR Objective

H Read, interpret, and draw histograms and population pyramids from data.

Vocabulary

distribution REPRESENTATION OF DATA USING FREQUENCY

histogram BAR GRAPH THAT SEPARATES DATA INTO INTERVALS

bins "BANDS" IN HISTOGRAM

frequency histograms SHOW # OF VALUES THAT FALL INTO EACH BIN

relative frequency histograms SHOW % OF VALUES THAT FALL INTO EACH BIN

skewed NOT SYMMETRIC, CLUSTERS ON ONE SIDE

symmetric BOTH SIDES LOOK THE SAME

population pyramid DOUBLE HISTOGRAM ROTATED 90°

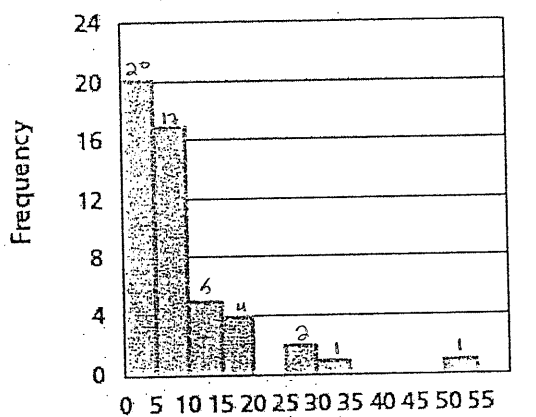
We strongly recommend not discussing this lesson until students have had an opportunity to read it and try the questions on their own. Reading mathematics may be a new expectation for some students.

To be most effective, the reading of mathematics should be an active, not passive, process. Students should read with a pencil in hand and paper to write on, watching for important terms and symbols. After Reading the Notes

Answer the following:

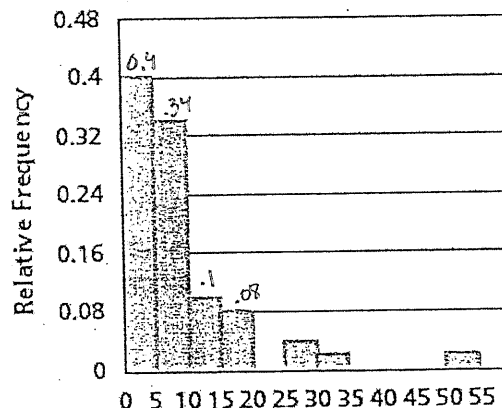
- 1) What do I already know?
- 2) What did I learn?
- 3) Where will I use it?

Number of Representatives in Congress



Number of Representatives from a State

Number of Representatives in Congress



Number of Representatives from a State

Use the histograms on congressional data for the following questions.

- 1) About how many states have 5 to 14 representatives?

$$17 + 5 = 22$$

- 2) What percent of states have fewer than 15 representatives?

$$0.4 + 0.34 + 0.1 = 0.84 \text{ or } 84\%$$

- 3) Look at the raw data set, which appears before the histograms (Pg 22). Are you surprised that the bar spanning $0 \leq x < 5$ is the tallest? Why or why not?

No, the #'s 1, 2, 3 and 4 are most common in 1st.

Histograms on your Calculator

Sec 1-3
p. 2

Below are the daily high temperatures in March one year in Lincoln, Nebraska.

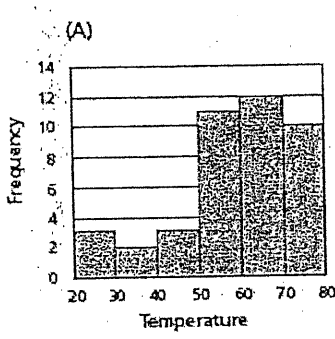
69, 60, 34, 41, 36, 44, 27, 45, 43, 49, 71, 67, 64, 54, 43, 40
42, 58, 61, 68, 56, 45, 45, 64, 61, 60, 49, 51, 58, 53, 42

- 1) Enter List ^{#1} STAT - EDIT - L1
2ND Y=
- 2) Graph 2ND STAT PLOT - 1: On - Type - histogram
 ZOOM - 9: ZoomStat

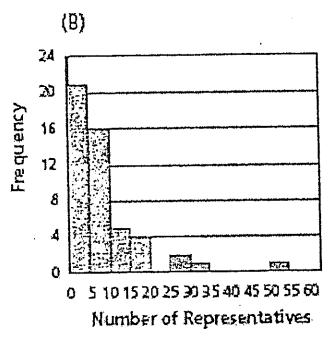
- 3) adjust bin width WINDOW - What should Xmin & Xmax be?
 (bin width = 5) Xscl = 5 HIT GRAPH 9 bins (bars)
- 4) bin width = 2 How does this affect the graph? (adjust Xscl) Too many bins (bars)
 Xscl = 2
- 5) bin width = 10 How does this affect the graph? Too few bins (bars)
 Xscl = 10

6 Which bin width is best? How should you choose?
 Set bin width so you have 5-10 bins (bars)
 (x scl)

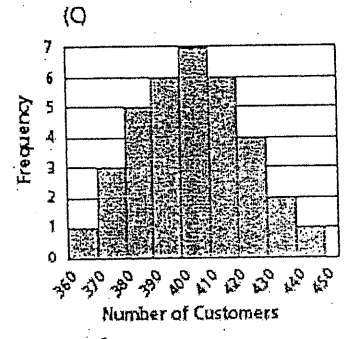
Analyzing Histograms- Describe the shape of distribution



- Left Tail
- Skewed Left



- Right Tail
- Skewed Right

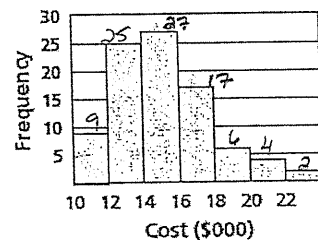


- Symmetric
- Balanced on both Sides

Reading Histograms

In 7-11, refer to the histogram at the right of the total in-state cost of 100 public colleges.

Average Total In-State Cost
100 Colleges, 2008-09



7. About how many colleges had total costs between \$10,000 and \$12,000? 9 colleges
8. What is the bin width? 2 or \$2000
9. Approximately how many colleges had total costs between \$14,000 and \$18,000? 44 colleges

90 Total

$\frac{90}{2} = 45$
 45th + 46th
 middle
 2

10. In what interval is median cost? 14-16 or \$14,000 to \$16,000
11. What % of colleges cost more than \$18,000? $\frac{12}{90} = 13\%$