

3D HW 3.17-3.19, 3.21, 3.23 (SECTION 3.1)

3.17 BACK OF BOOK

3.18

CALORIE CONTENT
(CAL/100ML)

1	9	
2	2 3 7 8 8 9 9 9	
3	0 0 1 1 1 2 2 3 3 4 5 9	
4	0 1 2 3	

STEM: TENS
LEAF: ONES

- Most brands of light beers have calorie content BETWEEN 27 AND 35 CAL/100ML.
- 4 BRANDS HAVE HIGHER (39-43 CAL/100ML.)
- 4 BRANDS HAVE LOWER (19-23 CAL/100ML)

3.19

3.21

3.23

BACK OF BOOK

3B ODD ANSWERS

- 3.17 a 2.2 liters/min.
- b In the row with stem of 8. The leaf of 9 would be placed to the right of the other leaves.
- c A large number of flow rates are between 6.0 and 8.0. Perhaps 6.9 or 7.0 could be selected as a typical flow rate.
- d There appears to be quite a bit of variability in the flow rates. While there are a large number of flow rates in the 6.0 to 9.0 range, the flow rates appear to vary quite a bit in relation to one another.
- e The distribution is not symmetric. Taking 7.0 as a typical value, the smaller flow rates are spread from 2.2 to 7.0, while the larger flow rates are spread from 7.0 to 18.9 (a larger spread).
- f The value 18.9 appears to be somewhat removed from the rest of the data and hence is an outlier.

3.19

Calorie Content (cal/100ml) of 26 Brands of Light Beers	
1L	
1H	9
2L	23
2H	788999
3L	00111223345
3H	9
4L	0123
4H	

① stem: tens
leaf: ones

STEM PLOT TEACHER NOTES

- You must provide a label for stem/leaf.
- Numbers are in order, no commas, numbers are lined up.

3.21

a

% of fully credentialed teachers in CA counties

7	5	stem: tens leaf: ones
8	0 3 3 4 5 5 5 5 5 6 7 8 8 8 9 9	
9	0 0 1 1 1 1 2 2 3 4 4 4 4 5 5 5 5 5 5 5 6 6 7 7 7 7 7 7 7 7 8 8 8 8 8 8 9 9	
10	0	

Most counties in California have over 90% of their teachers fully credentialed. Los Angeles County is the lowest with only 75% and Alpine is the only County where 100% of their teachers are fully credentialed.

b

% of fully credentialed teachers in CA counties

7L		stem: tens leaf: ones
7H	5	
8L	0 3 3 4	
8H	5 5 5 5 5 6 7 8 8 8 8 9 9	
9L	0 0 1 1 1 1 2 2 3 4 4 4 4	
9H	5 5 5 5 5 5 5 6 6 7 7 7 7 7 7 7 7 7 8 8 8 8 8 9 9	
10L	0	

We can now see that there are only ⁵three counties with less than 85% of their teachers fully credentialed.

3.23

a

% increase in population 1990 to 2000

0	0 1 3 4 4 4 5 5 5 5 6 7 8 8 8 8 9 9 9 9 9	stem: tens leaf: ones
1	0 0 0 0 0 0 1 1 2 3 4 4 4 4 5 7 8	
2	0 0 1 1 3 3 6 8	
3	0 1	
4	0	
5		
6	6	

Table

STATE	% Δ	STEM	LEAF
CA	13.8	1	3
TX	22.8	2	2
NY	05.5	0	5
		↑ TENS	↑ ONES

b

48 of the states have an increase in population of 31% or less, and most of these are under 12%. There are two states that have a much larger % increase: Nevada (66%), and Arizona (40%)

c

% increase in population 1990 to 2000

WEST		EAST
9 9 8 8 8 0	0	1 3 4 4 4 5 5 5 6 7 8 9 9 9
4 4 3 0	1	0 0 0 0 0 1 1 2 4 4 5 7 8
⑧ 3 1 0 0	2	1 3 6
⑩ ⑩	3	
① ①	4	
	5	
⑥ ⑥	6	

stem: tens
leaf: ones

The States that show a large % increase in population are in the West. There are 5 states in the West (out of 19) that has a % increase greater than the maximum increase in the East.

3.25, 3.26, 3.28, 3.39 (SECTION 3.3)

3.25 A

ALZHEIMER'S (ADL) IMPAIRMENTS

NUMBER OF IMPAIRMENTS	FREQUENCY	RELATIVE FREQUENCY
0	100	.4167
1	43	.1792
2	36	.1500
3	17	.0708
4	24	.1000
5	9	.0375
6	11	.0458
$n = 240$		1.0000

NOTE:
MUST GO TO
4 DECIMALS
TO TOTAL
TO 1.

B AT MOST 2 IMPAIRMENTS = (.7459) $(.4167 + .1792 + .1500)$

C MORE THAN 2 IMPAIRMENTS = (.2541) $(1 - .7459)$

D AT LEAST 4 IMPAIRMENTS = (.1833) $(.1000 + .0375 + .0458)$

E THE FREQUENCY AND RELATIVE FREQUENCY TENDS TO DECREASE AS THE NUMBER OF IMPAIRMENTS INCREASE.

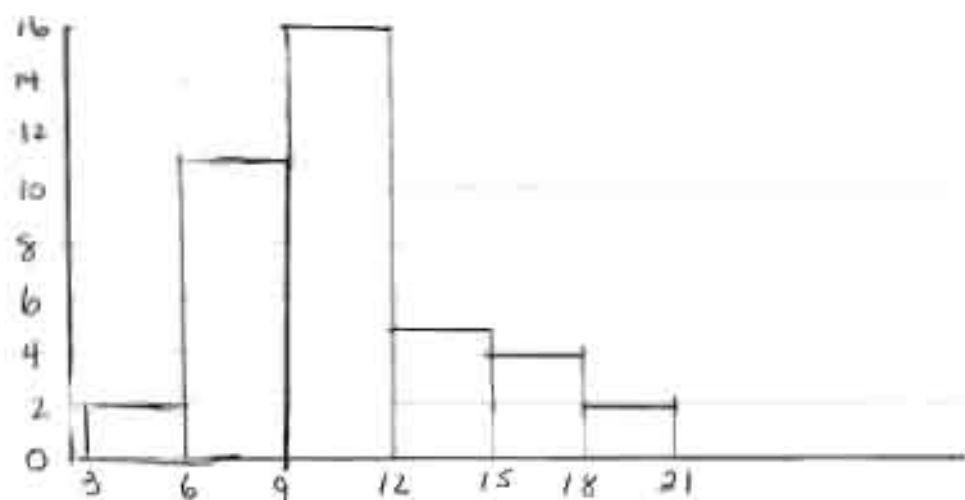
26 A

ZINC INTAKE (in milligrams)		
CLASS INTERVALS	FREQUENCY	RELATIVE FREQUENCY
3 - < 6	2	.050
6 - < 9	11	.275
9 - < 12	16	.400
12 - < 15	5	.125
15 - < 18	4	.100
18 - < 21	2	.050
TOTAL	40	1.000

B LESS THAN 12 - $\boxed{.725}$ $(.05 + .275 + .4)$
 BETWEEN 6 AND 15 - $\boxed{.8}$ $(.275 + .4 + .125)$

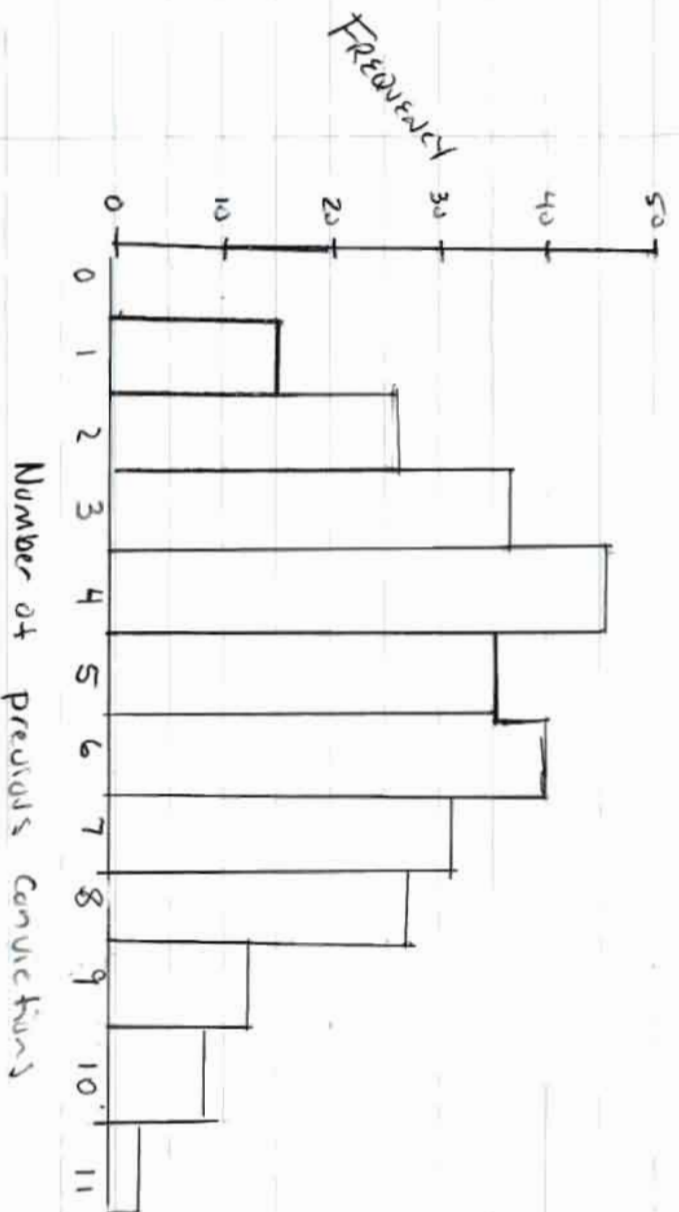
C

ZINC INTAKE (mg) for
Arthritis Patients



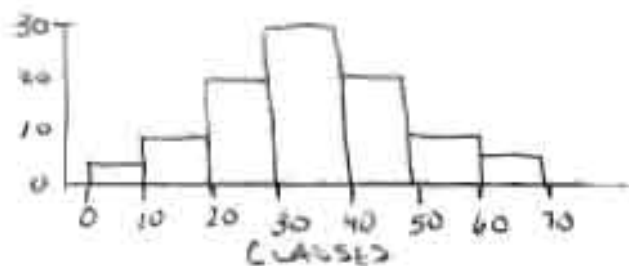
- Most patients take between 9 and 12 mg.
- Of the 40 patients only 2 take less than 6mg and only 2 take more than 18 mg ZINC.

3.88

NUMBER OF PREVIOUS CONVICTIONS

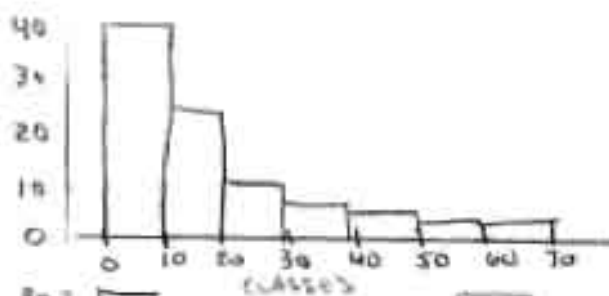
- The graph is nearly symmetric
- It is centered around 5
- There is a slight amount of right skewness

3.39 I
Relative
freq



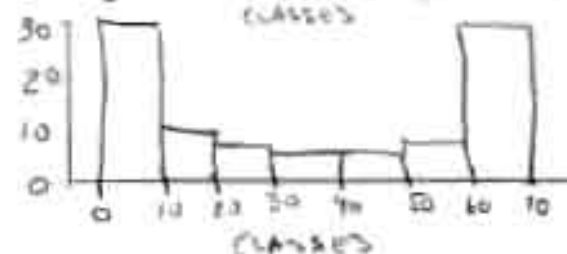
HISTOGRAM IS
SYMMETRIC

II
Relative
freq



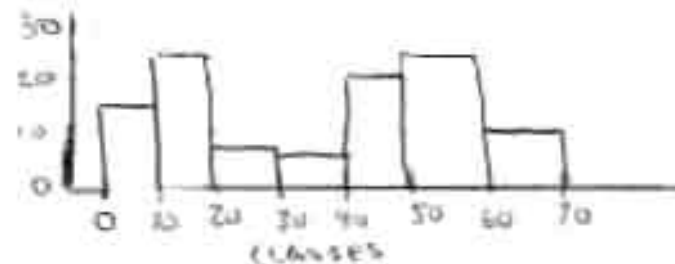
HISTOGRAM IS
POSITIVELY
(OR RIGHT)
SKEWED

III
Relative
freq



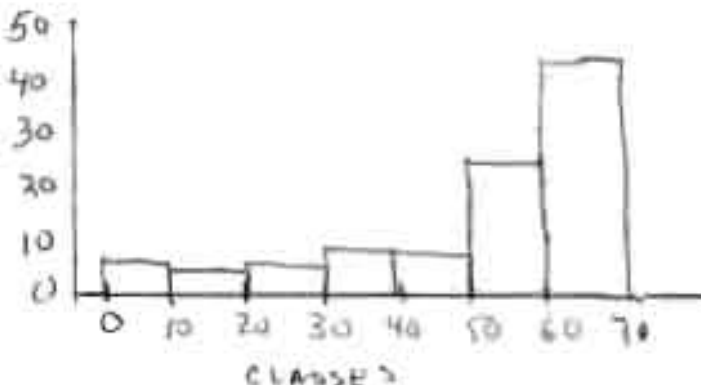
BIMODAL
HISTOGRAM

IV
Relative
freq



BIMODAL
HISTOGRAM

V
Relative
freq



HISTOGRAM IS
NEGATIVELY
(LEFT)
SKEWED

13.30

A

Total Length of Streets within Subdivision
(NO UNIT OF MEASURE GIVEN)

STEM	LEAF
0	1 2 3 3 3 4 5 5 5 5 9 9
1	0 0 1 2 2 2 3 4 6 8 8
2	1 1 1 2 3 4 4 4 7 7
3	0 1 1 3 3 3 8
4	3 7
5	2 3 7 7 8

STEM: THOUSANDS
LEAF: HUNDREDS

SOCKS

- SHAPE IS NOT PERFECTLY SYMMETRIC, AND SKEWED TO THE HIGHER LENGTHS (A POSITIVE/RIGHT SKEW)
- OUTLIERS THERE ARE NO GAPS OR OUTLIERS
- CENTER IS IN THE STEM 2 ROW AND IS ABOUT 2,100.
- SPREAD IS TIGHT.
- The graph shows streets lengths decline to the 4,000's then have a group that increases.

3.30 CONT

STREET LENGTHS

(B)

CLASS INTERVAL	FREQUENCY	RELATIVE FREQUENCY
0-1000	12	.26
1000-2000	11	.23
2000-3000	10	.21
3000-4000	7	.15
4000-5000	2	.04
5000-6000	5	.11
Total	n = 47	1.00

TEACHER COMMENTS

- DECIDED TO USE RELATIVE FREQ. SINCE IT WILL BE EASIER FOR SCALING %'S OVER LENGTHS IN 1,000'S
- NEED TO USE THE NUMBER OF DECIMALS SO THE TOTAL ADDS TO 1.



SHAPE: POSITIVELY OR RIGHT SKEWED

(C)

What % of the subdivision has total length less than 2,000?

EITHER $\frac{12+11}{47} = .489$ OR $.26 + .23 = .49$

% between 2,000 and 4,000?

EITHER: $\frac{10+7}{47} = .3617$ OR $.21 + .15 = .36$