

2.16

\$1

low

$$1 + 200 - 1 = 200$$

\$1167 high

6 classes width \$200

a)

	classes	Boundaries	(Mark) Mid
1	1 to 200	0.5 to < 200.5	100.5
2	201 to 400	200.5 to < 400.5	300.5
3	401 to 600	400.5 to < 600.5	500.5
4	601 to 800	600.5 to < 800.5	700.5
5	801 to 1000	800.5 to < 1000.5	900.5
6	1001 to 1200	1000.5 to < 1200.5	1100.5

To get boundaries
 highest value of 1st class
 lowest value of 2nd class

$$\frac{\text{add}}{2} \quad \frac{200 + 201}{2} = \frac{401}{2} = 200.5$$

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Sturges' Rule

class # is about $1 + 3.3 \log n$

$$\log 1000 = 3$$

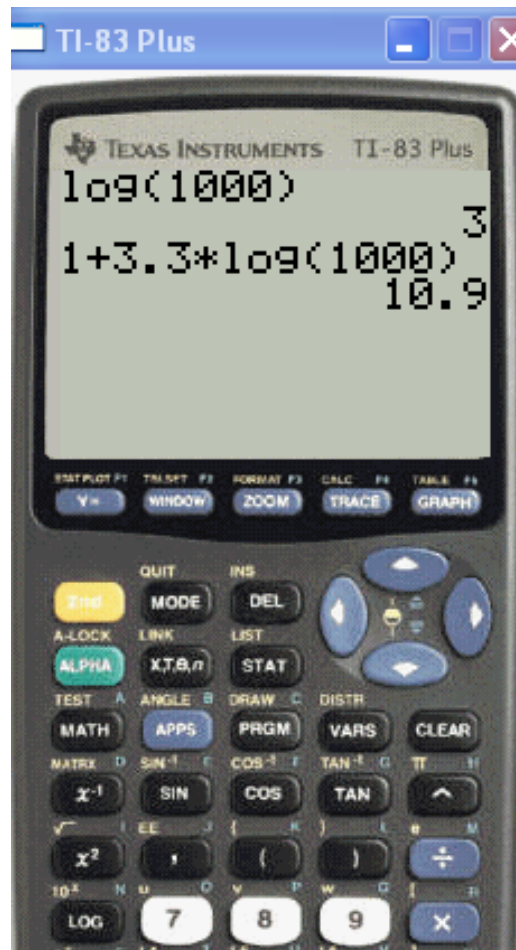
because $10^3 = 1000$

$$1 + 3.3(3)$$

$$1 + 9.9$$

$$10.9$$

$$10 \text{ or } 11$$



x_1
 x_2
 x_3

x_1^2 *exponent*
superscript
subscript
 ↓
 the #

Our variable - Home runs

Quantitative

Discrete

Q_d

Continuous data

weights

gallons of gas

Q_c

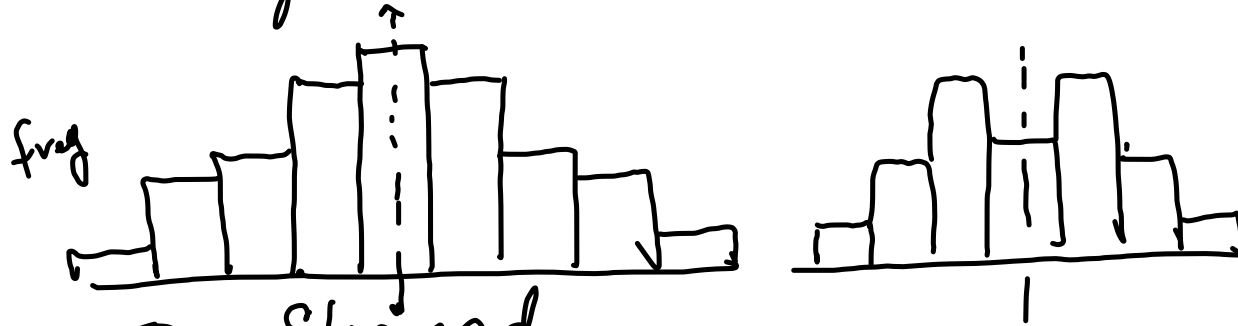
l to $< h$

limits
& boundaries

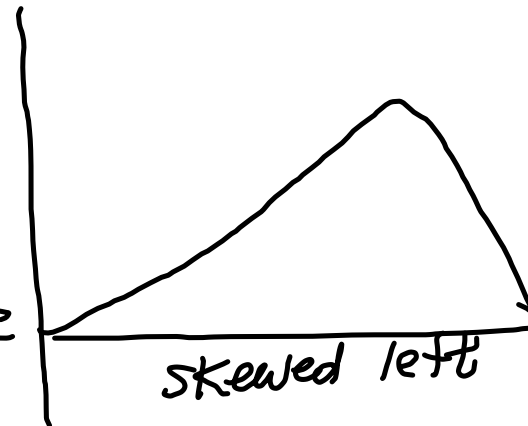
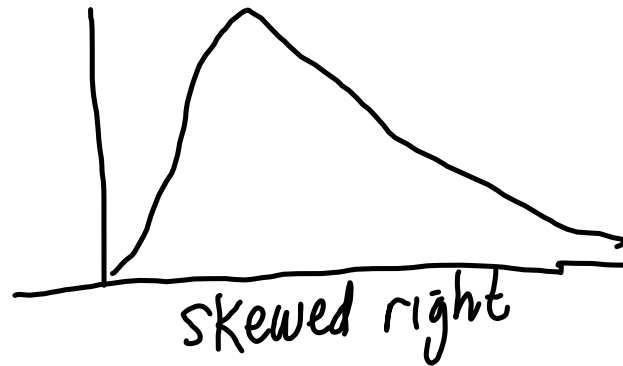
If have very few values for the variable - you can have single value classes

Common Shapes of histograms

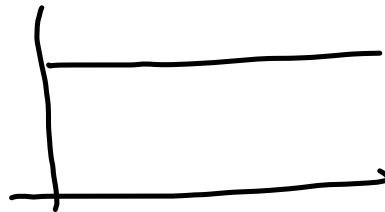
① Symmetric



② Skewed



③ Uniform

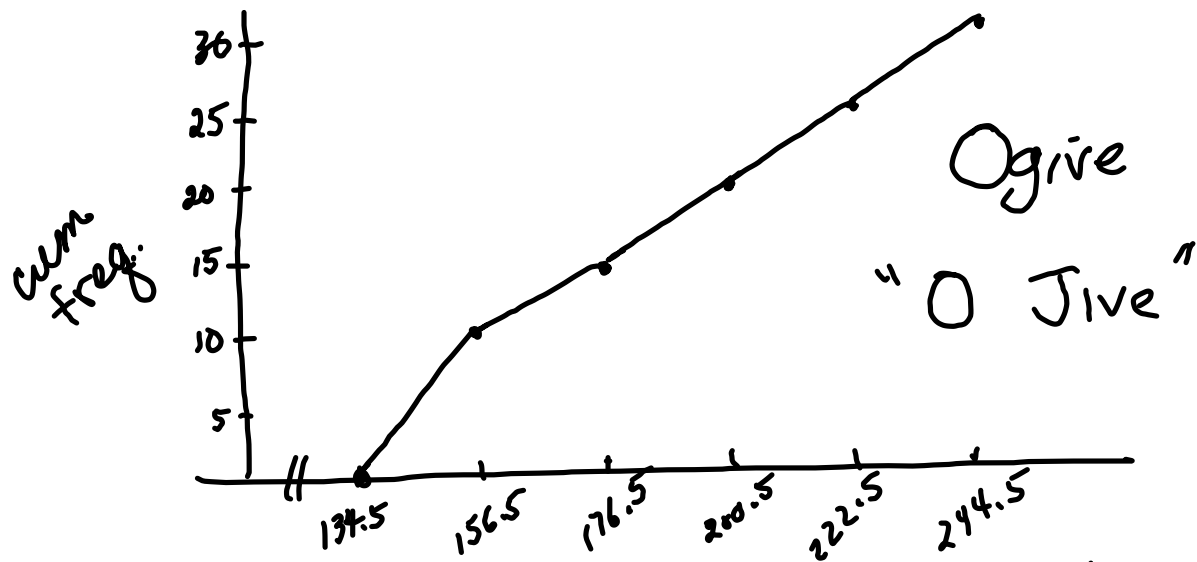


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2.5

Cumulative Frequency Distribution

Homerus	freq	Cum freq
135 - 156	10	10
157 - 178	3	13
179 - 200	7	20
201 - 222	6	26
223 - 244	4	30



Start at bottom boundary of 1st class.

2.6 Stem & Leaf Displays

135 - 156	10
157 - 178	3
179 - 200	7
201 - 222	6
223 - 244	4
Stems tens	Leafs

13	5 5 9 6
14	8 2 5 5
15	0 1
16	9 2
17	8
18	4 7 5 9 3
19	4 1
20	2 1 3
21	5 4
22	2 7
23	5
24	2 2

How many teams
scored below 190
home runs?

In Stem	Order Leaf
13	5 5 6 9 ←
14	2 5 5 8
15	0 1
16	2 9
17	8
18	3 4 5 7 9
19	1 4
20	1 2 3
21	4 5
22	2 7
23	5
24	2 2

Combine

13-14

5 5 6 9 * 2 5 5 8

15-16

0 1 * 2 9

17-18

8 * 3 4 5 7 9

19-20

1 4 * 1 2 3

21-22

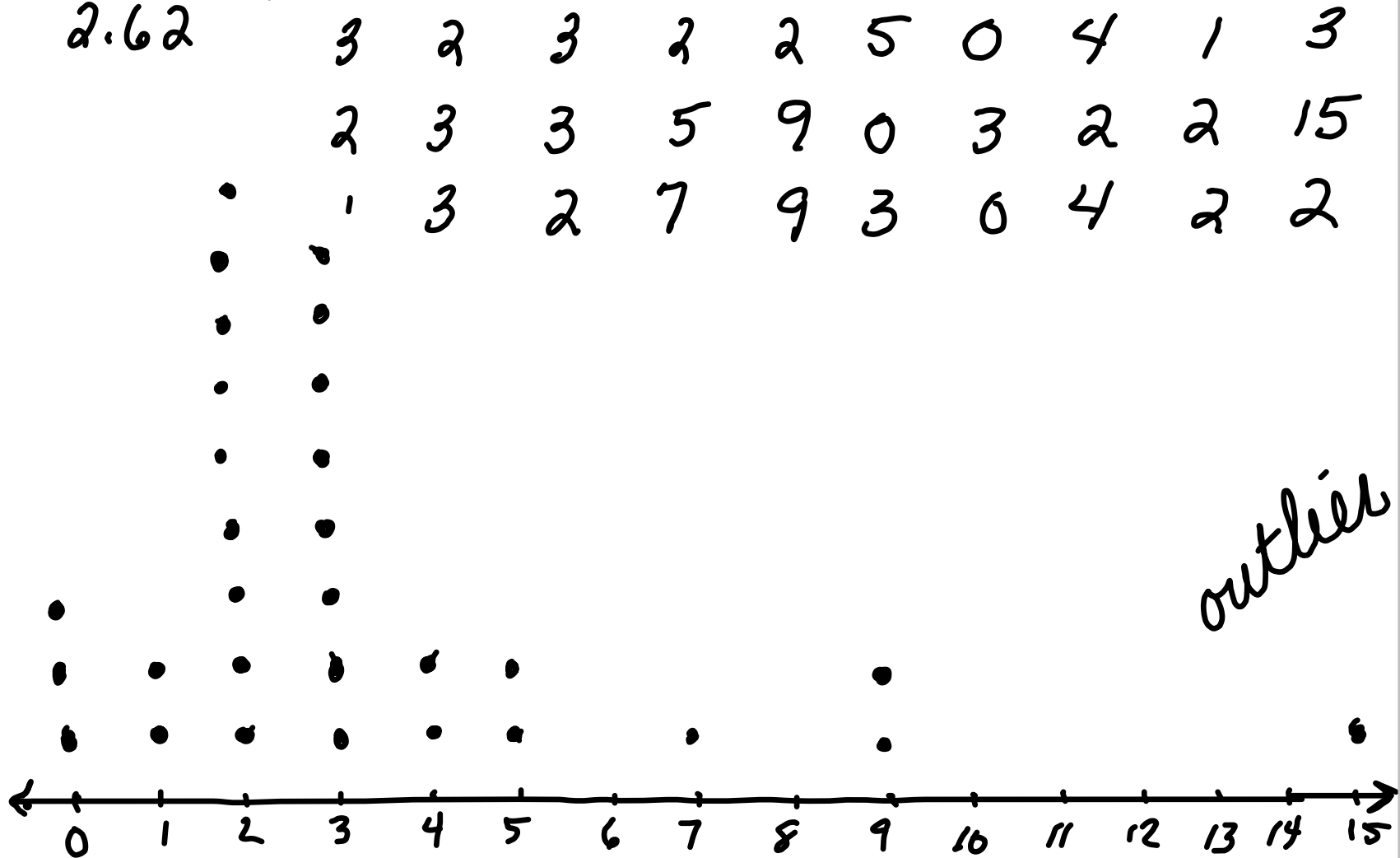
4 5 * 2 7

23-24

5 * 2 2

2.7 Dotplots

2.62



3.1 Measures of Central Tendency for Ungrouped Data

3 different measures of central
tendency

The mean, median, mode

trimmed mean
a weighted mean

The mean (also called the arithmetic
mean)

$$\text{Mean} = \frac{\text{Sum of all values}}{\# \text{ of values}}$$

The mean of sample data is denoted
by $\bar{x}$ (read "x bar")

The mean of the whole population
is μ (Greek letter mu)

The number of values in a sample
is denoted by n

The number of values in a population
is denoted by N

◦◦ Mean for population: $\mu = \frac{\sum x}{N}$

Mean for a sample: $\bar{x} = \frac{\sum x}{n}$

Ungrouped kitten weights

63 52 57 37 84 60 65 72 40 49 63
44 51 69 91 76 41 52 58 57 45
56 54 38 77

$$\text{Sample } \bar{x} = \frac{\sum x}{n} = \frac{1451}{25} = 58.04$$

Median - is the middle term in the
the data set - when in numeric
order

37 38 40 41 44 45 49 51 52⁵² 54 56 57 57
58 60 63 63 65 69 72 76 77 84 91

To find the middle term
take $\frac{n+1}{2} = \frac{25+1}{2}$

If we had 10 $\frac{10+1}{2} = 5.5$

1 2 3 4 5^{5.5} 6 7 8 9 10
↑
 $\frac{5+6}{2}$

Data set

$$n = 8$$

2 4 7 8 9 9 14 15
8.5
↑

$$\frac{n+1}{2} = \frac{8+1}{2} = \frac{9}{2} = 4.5$$

$$\frac{8+9}{2} = 8.5 \text{ median}$$

Mode -

Age student

18 21 19 18 26 19 21 18 23
19 18

18 1111

19 111

20

21 11

22

23 1

24

25

26 1

mode - 18