

STT 200 9-14-09

* CHAPTER 5 DROPPED FROM EXAM / (SEE REVISED SYLLABUS)

* CHAPTER 3-4 TODAY; CH. 4 WED. " " "

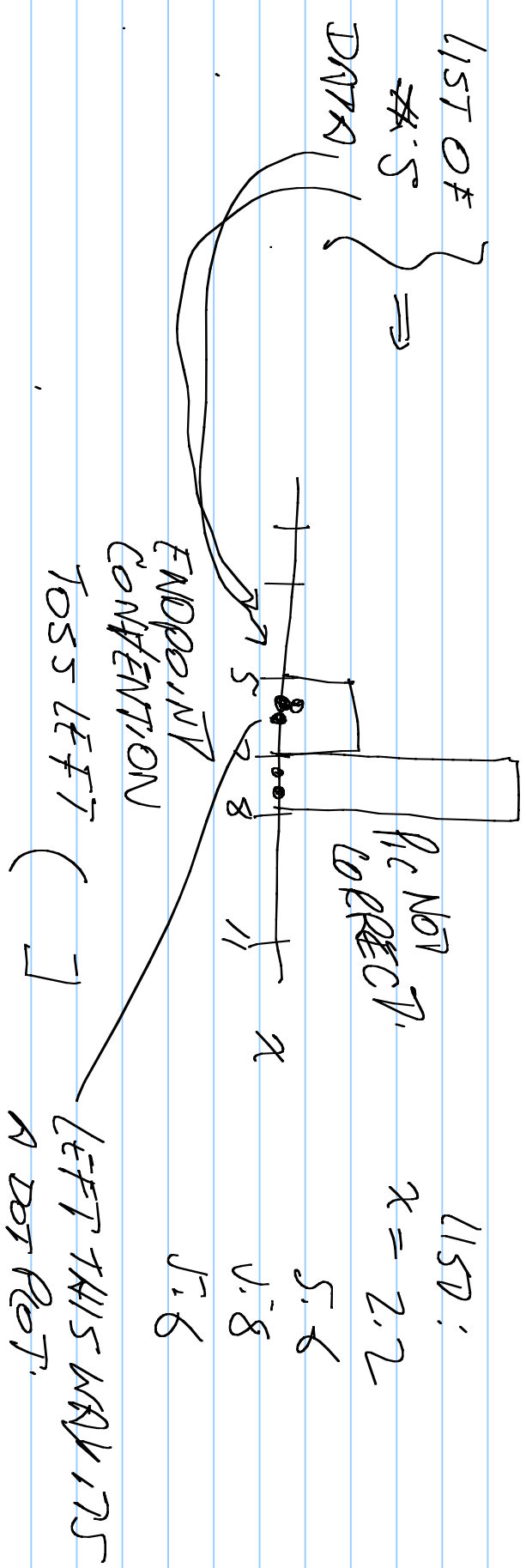
* SOFTWARE ON WEB: qudata.com/online/total

WILL ALLOW DATA ENTRY, SORT DATA, CALCULATE SAMPLE STANDARD DEVIATION, MEAN, MEDIAN, MEAN, PARTILES, TOPR, AND DRAW A HISTOGRAM, (NO DOWNLOAD REQUIRED TO USE IT).

NEW TOPICS "TODAY (CH. 4)". (CON. TO SPERM + LEAF ROOT)

HISTOGRAM "TAXONOMY" MAKING A HISTOGRAM
MEASURES OF CENTRALITY
MEASURES OF SPREAD
SOME CH 3 EXERCISES TODAY ALSO.

CH 4. Histogram — A PICTURE OF DATA



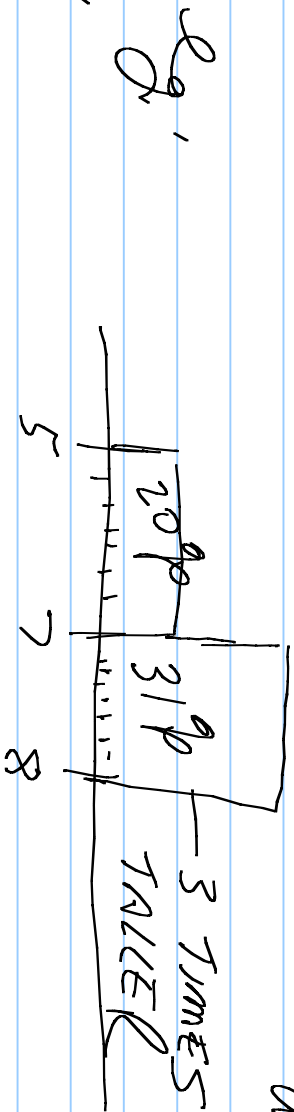
RULE FOR PROBABILITY HISTOGRAM (A HISTOGRAM WITH TOTAL AREA 1).

AREA WITH HEIGHT H

AREA = HW = $\frac{\text{FREQ}}{\text{TOTAL FREQ}}$

BIN WIDTH = W

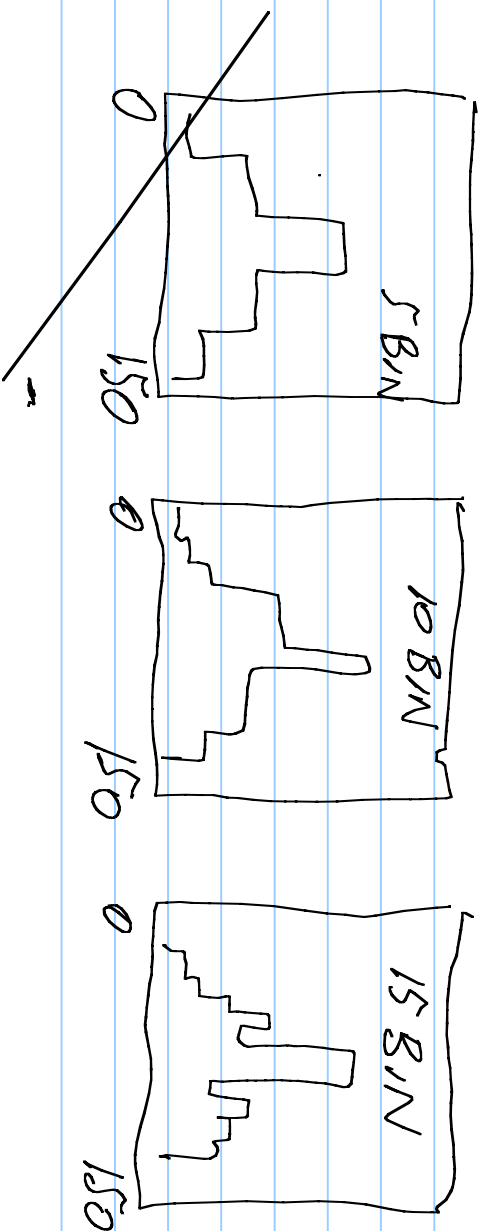
\Rightarrow HEIGHT (ABOVE BIN) = $\frac{\text{PROBABILITY}}{\text{WIDTH}}$

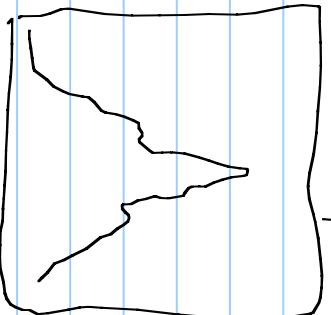
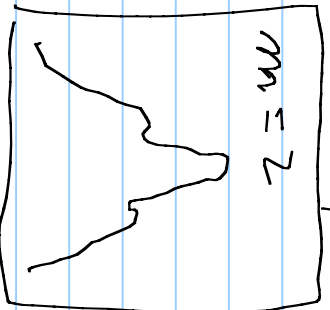
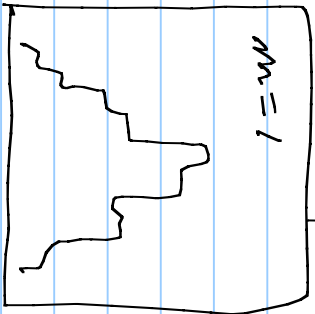
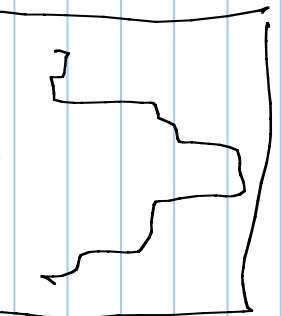
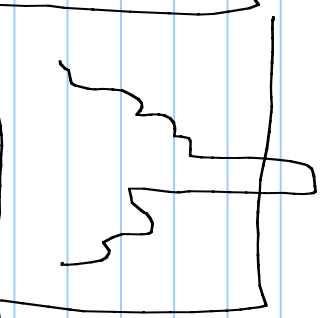
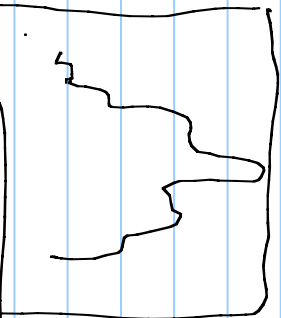
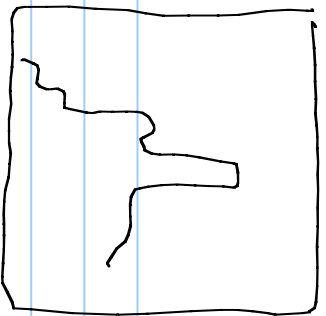
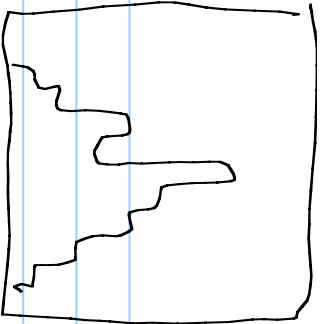
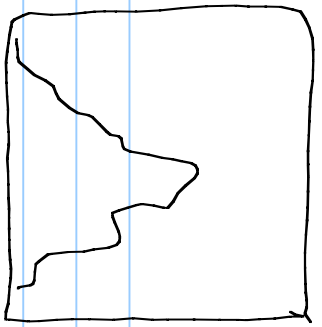
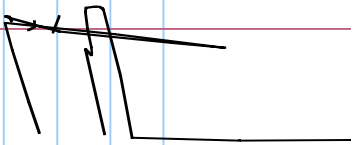


H FOR BIN 5, 7
 $15 \cdot \frac{.2}{2} = .15$

H FOR BIN 7, 8

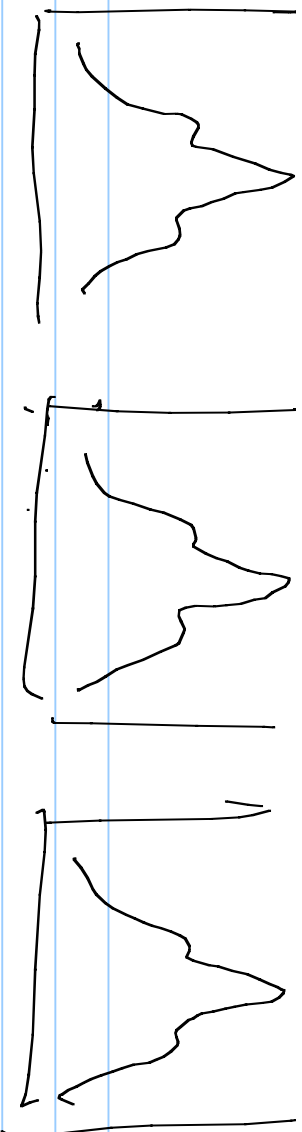
$15 \cdot \frac{.31}{1} = .31$



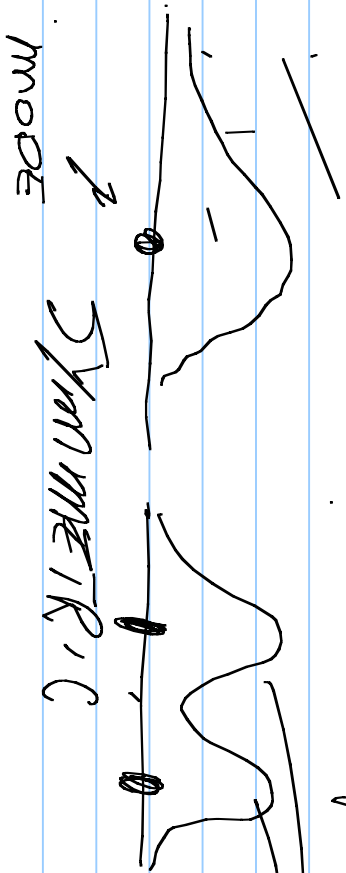


$m=32$

RELATIVELY
MORE
STABLE
PRESENTATION

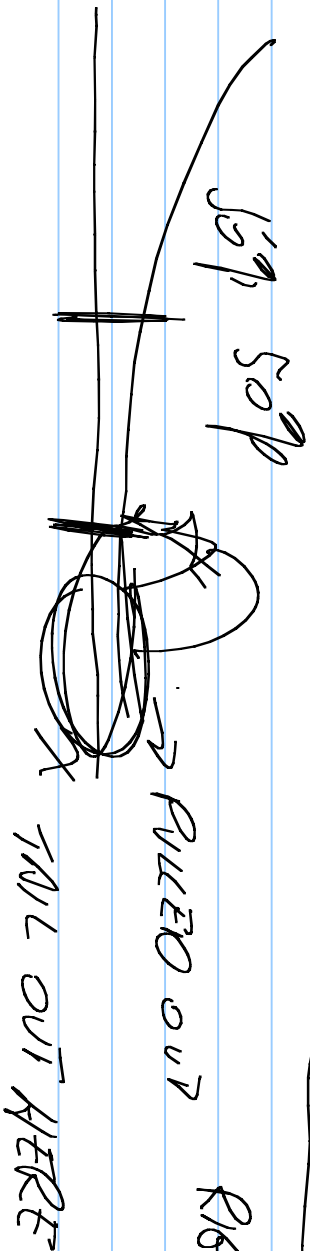
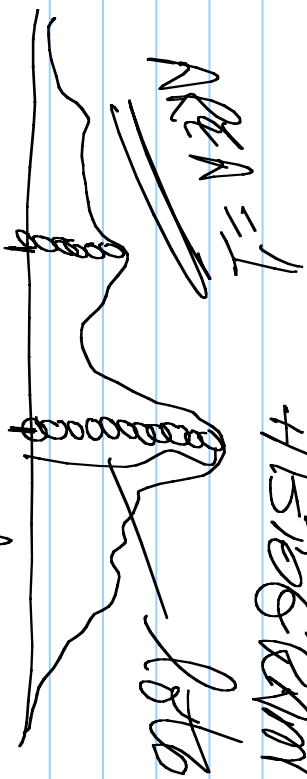


TAKEAWAYS: ESSENTIAL FEATURES & THEIR DESCRIPTORS.



BIMODAL

THINK OF HISTOGRAM AS



RIGHT TAIL CANNOT

LONG TAIL LEAVES MEDIAN ALONE BUT INCREASES MEAN

MEAN MEDIAN

$$\frac{1}{n} \sum_{i=1}^n x_i$$

$$x_{(1)} \leq x_{(2)} \leq \dots \leq x_{(n)}$$

ORDERED
(SORTED)
SCORES.

APPROX \rightarrow $\frac{n}{2}$ TH PLACE

MANDERBROT - LONG TAILS IN COMMODITY PRICE MOVEMENT.

LONG LEFT TAIL

#11 CH 4.

CONVENTIONAL UNDERSTANDING

FEWER
EVENTS

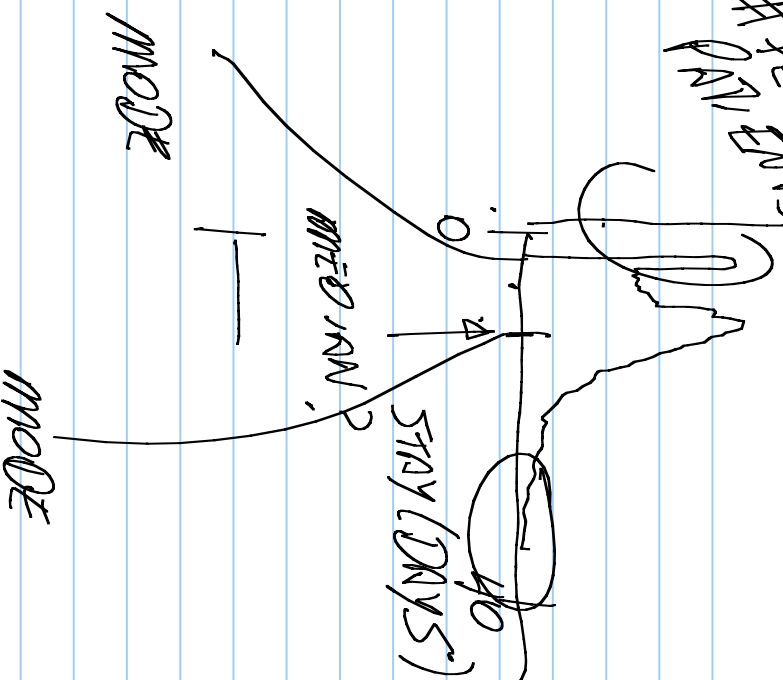
I CANNOT STOP

MEAN = BALANCE POINT

MEDIAN = HALFWAY (50%)

THROUGH AREA

B. MODAL



NOT ASSIGNED. SUPER BOWL WINS. FIRST 41 GAMES. TOTAL

$X = \text{HEIGHTS}$ - LOWEST
(MARKS IN)

- a) MEDIAN
- b) ~~POPULATION~~ ATTRIBUTES.
- c) MEAN
- d) HISTOGRAM
- e) STANDARD
- f) TOP

SORTED: GET $x_{(1)} = 1, 3, 3, 27, \dots, 32$

MEAN $\bar{x} = 15.3$

STANDARD DEVIATION (SAMPLE STANDARD DEVIATION) = 10.48

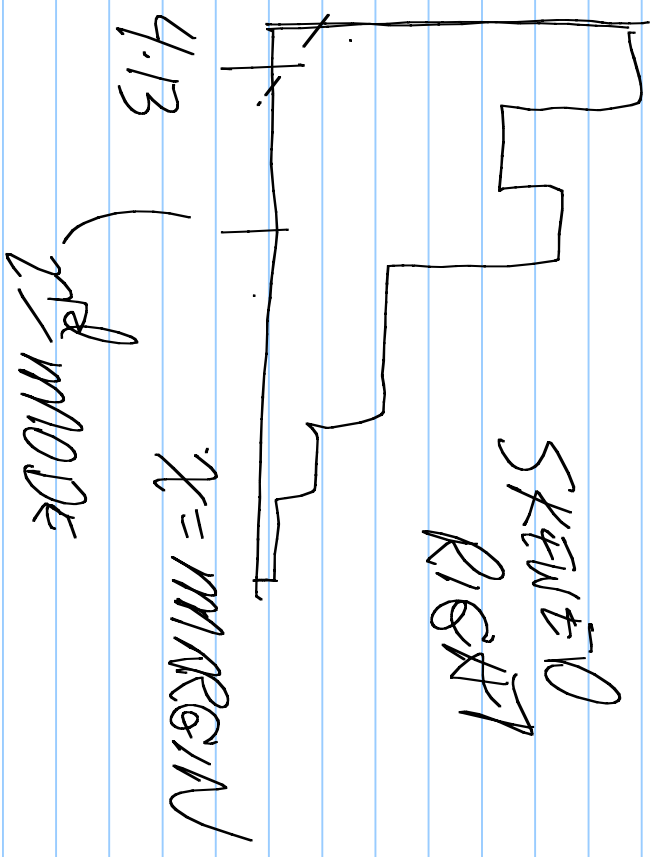
DEVIATION (IGNORE)

MEDIAN 14.0

LOWER QUANTILE = 7

UPPER " = 21

MODE = 4.13

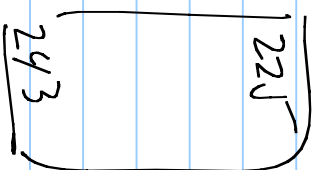


#51 CHY. VR 2005 STATE BY STATE AVG
MATH ACHIEVEMENT SCORES. 8TH GRADERS.

AL. 225
MI 238

225, 236,

WY 243

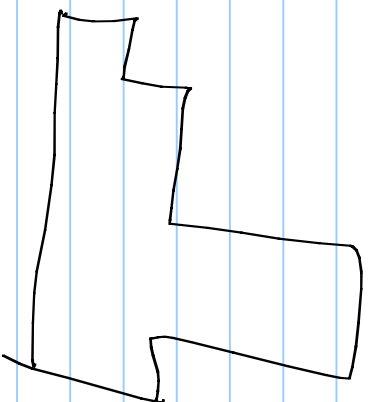
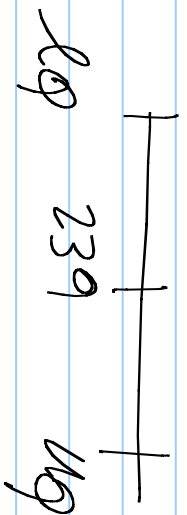


✓ CLEAR

MEAN 237.64
SIGMA X 5.69

233

242



SPREAD IQR = Quantile - Quantile
INTERQUARTILE RANGE

ABOVE IDS 242 - 239

STANDARD DEVIATION

$$s = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}}$$

$$\sum_{i=1}^n (x_i - \bar{x}) = 0$$

RMS D.F.A

ROOT MEAN SQUARED /
DEVIATION FROM AVG

(BUT n-1 WISE)