1. The Final Exam test scores were:

62, 66, 71, 75, 75, 78, 81, 83, 84, 85, 85, 87, 89, 89, 91, 92, 93, 94, 95, 99.

50th   a) Find the percentile rank for a score of 85 on this test. $\dfrac{9 + \frac{1}{2} \cdot 2}{20}$

28th   b) Find the percentile rank for a score of 78 on this test. $\dfrac{5 + \frac{1}{2} \cdot 1}{20}$

```
9+.5*2
 20
                    0.5
5+.5*1
 20
                    0.275
```

2. The heights of students in inches in Jim's math class are

55, 59, 59, 60, 61, 63, 64, 64, 65, 68, 68, 69, 72, 84.

50th   a) Find the percentile rank for a height of 61 inches. $\dfrac{4 + \frac{1}{2} \cdot 1}{14}$

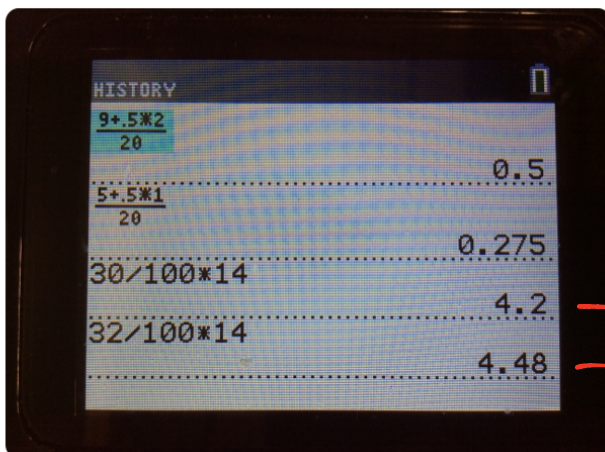**28th**   b) Find the percentile tank for a height of 5 foot 8 inches. $5 \times 12 + 8$ $\dfrac{9 + \frac{1}{2} \cdot 2}{14}$
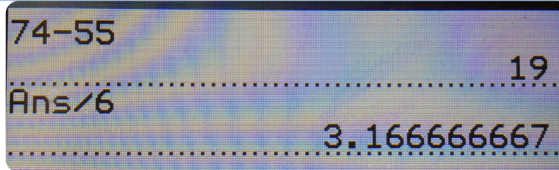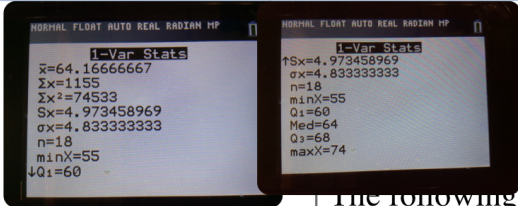
61   c) Find the approx. height for someone who is in the 3RD decile.

61   d) Find the approx. height for someone in the 32ND percentile.

```
HISTORY
9+.5*2
 20
                    0.5
5+.5*1
 20
                    0.275
30/100*14
                    4.2     = 5/5
32/100*14
                    4.48    = 5/5
```

```
NORMAL FLOAT AUTO REAL RADIAN MP
       1-Var Stats
x̄=64.16666667
Σx=1155
Σx²=74533
Sx=4.973458969
σx=4.833333333
n=18
minX=55
↓Q₁=60
```

```
NORMAL FLOAT AUTO REAL RADIAN MP
       1-Var Stats
↑Sx=4.973458969
σx=4.833333333
n=18
minX=55
Q₁=60
Med=64
Q₃=68
maxX=74
```

```
74-55
                    19
Ans/6
          3.166666667
```
↑ 4

The following data represents the heights (in inches) of 18 students in Mrs. Schultzkie's math class:

$$65, 63, 68, 59, 74, 59, 68, 61, 64, 60, 69, 72, 55, 64, 64, 68, 59, 63$$

INTERVAL	FREQUENCY	CUMULATIVE FREQ
55 - 58	1	1
59 - 62	5	6
63 - 66	6	12
67 - 70	4	16
71 - 74	2	18
75 - 78	0	18

a) Complete the frequency distribution.

b) Construct a histogram for the data

c) Which interval contains the median? **63 - 66**

d) Which interval contains the third (upper) quartile? **67 - 70**

e) What percent of the students are shorter than 5 feet 7 inches?   (67)

12 of the 18 = $\frac{12}{18}$ = **66.7%**

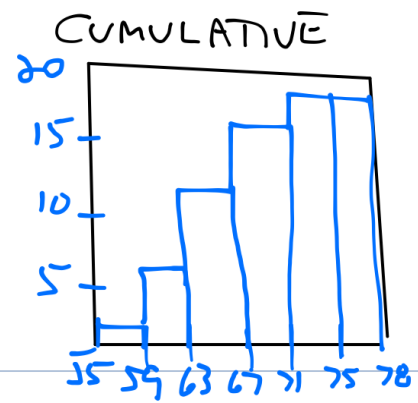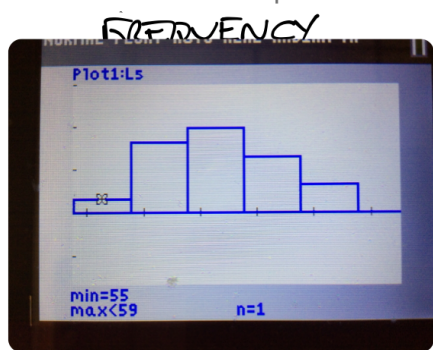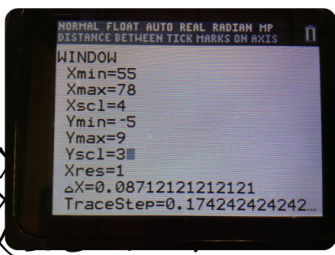f) What is the percentile rank of someone who is 5 feet 4 inches tall ?   (64)

$\frac{8+\frac{1}{2}\cdot 3}{18}$ = .527 → **53ᴿᴰ**

g) What is the percentile rank of someone who is 6 foot 1 inch tall ?

$\frac{17+\frac{1}{2}\cdot 0}{18}$ = .944 → **95%**

g) How many students are shorter than

1   6   12   16   18

1) 59 inches   2) 63 inches   3) 67 inches   4) 71 inches   5) 75 inches

```
NORMAL FLOAT AUTO REAL RADIAN MP
DISTANCE BETWEEN TICK MARKS ON AXIS
WINDOW
Xmin=55
Xmax=78
Xscl=4
Ymin=-5
Ymax=9
Yscl=3
Xres=1
ΔX=0.08712121212121
TraceStep=0.174242424242…
```

FREQUENCY

```
Plot1:Ls


min=55
max<59          n=1
```

CUMULATIVE

Graphical Analysis   In Exercises 13 and 14, use the frequency histogram to

(a) determine the number of classes.

(b) estimate the frequency of the class with the least frequency.

(c) estimate the frequency of the class with the greatest frequency.
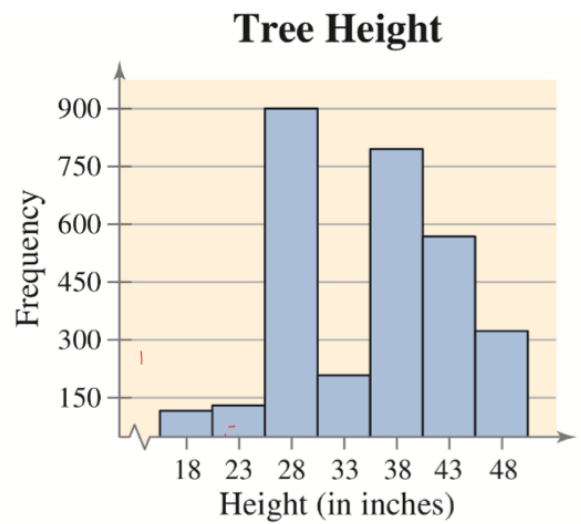
(d) determine the class width.

13.

Employee Age

Frequency vs Age (in years)

x-axis: 24.5, 34.5, 44.5, 54.5, 64.5, 74.5, 84.5

14.

Tree Height

Frequency vs Height (in inches)

x-axis: 18, 23, 28, 33, 38, 43, 48

a) _____ 7 _____   _____ 7 _____

b) _____ 10 _____   _____ 120 _____

c) _____ 300 _____   _____ 900 _____

d) _____ 10 _____   _____ 5 _____

   (34.5-24.5)

Test Scores histogram (Frequency vs Test Scores)
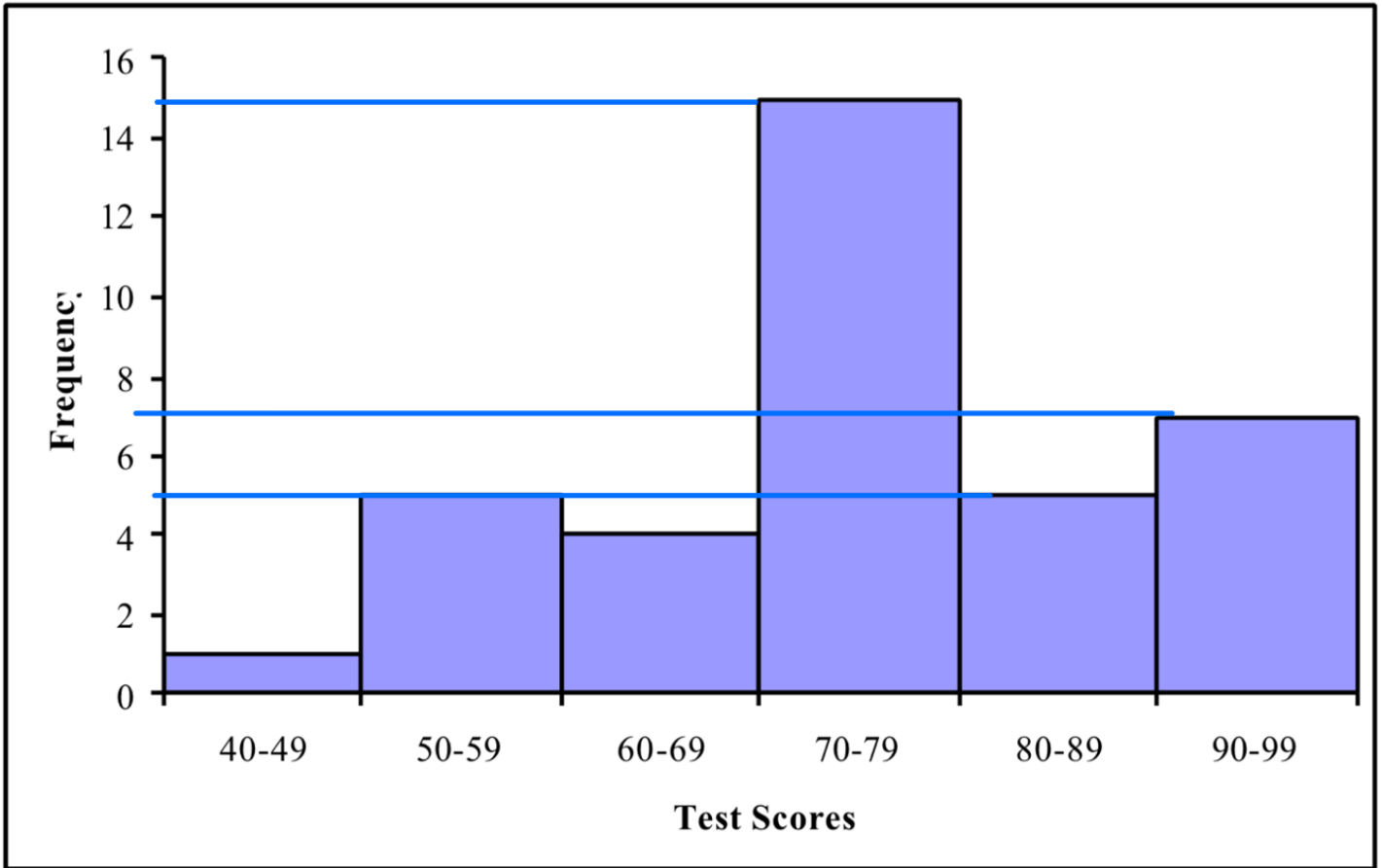
INTERVAL	FREQUENCY	CUMULATIVE
40 – 49	1	1
50 – 59	5	6
60 – 69	4	10
70 – 79	15	25
80 – 89	5	30
90 – 99	7	37