Station 1

1) Create a set of seven positive numbers (repeats allowed) that have a median of 70 and mean of 62. $62 \times 7 = 434$

$\underline{\quad 10 \quad}$ $\underline{\quad 40 \quad}$ $\underline{\quad 47 \quad}$ $\underline{\quad 70 \quad}$ $\underline{\quad 88 \quad}$ $\underline{\quad 89 \quad}$ $\underline{\quad 90 \quad}$

median

☆ ANSWERS VARY ☆

2) Sally's test scores in Pre-Calculus are 89, 96, 84, and 87. What does she need to get on her next test so that her test average is 90?

$$5\left(\frac{89 + 96 + 84 + 87 + x}{5}\right) = (90)\,5$$

$$356 + x = 450$$
$$-356 \qquad\quad -356$$

$$\boxed{x = 94}$$

In some high schools, a student's GPA is calculated based on the credits assigned to a letter grade in a specific class. The grading scale below is used in her school.

Letter	F	D-	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
Grade Points	0.00	0.67	1.00	1.33	1.67	2.00	2.33	2.67	3.0	3.33	3.67	4.00	4.00

Maggie's Report Card

Course	Credit	Letter
AP Stats	5	A- 3.67
FACE	1	A+ 4.00
Honors English	4	B+ 3.33
Physics	3	C+ 2.33
Economics	3	B- 2.67

3) Use Maggie's report card and her school's grading scale to calculate her GPA.

$$\frac{(5)(3.67) + (1)(4.00) + (4)(3.33) + 3(2.33) + 3(2.67)}{16}$$

$$= \frac{50.67}{16} = \boxed{3.17 \text{ GPA}}$$

Station 2

A school district surveys a sample of families to determine how far students must travel to school. Here are the results of the survey.

Distance to School	Elementary School	Middle School	High School	Total
2 blocks or less	72	34	12	118
2-6 blocks	132	107	89	328
6 blocks or more	80	83	108	271
Total	284	224	209	717

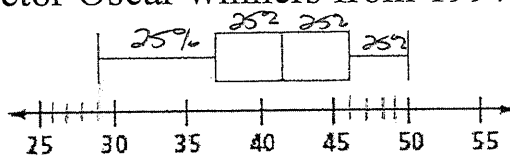In questions 4-5, refer to the table above.

4) What percent of middle school students walk 6 blocks or more to school?

$$\frac{83}{224} = \boxed{37.1 \%}$$

5) What percent of students who walk 2 blocks or less to school are elementary school students?

$$\frac{72}{118} = \boxed{61 \%}$$

In questions 6-7, refer to the box plot below that displays the ages of the best actor Oscar winners from 1997 to 2006.

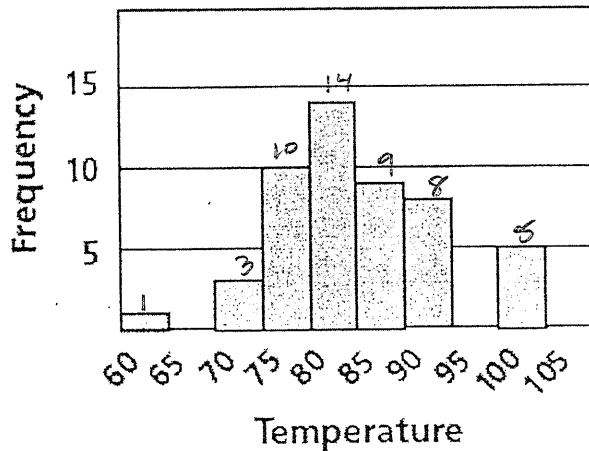6) Estimate the five-number summary for the box plot.

29, 37, 42, 46, 50

7) What range of ages represent the upper 75% of the data

37 - 50

Station 3

High Temperature
State Capitals, 8/14/08

In Questions 8-12, refer to the histogram above that displays the daily high temperature for state capitals.

8) About how many states had high temperatures from 75° to 79°?

$$10 \quad \text{states}$$

9) What is the bin width?

$$5°$$

10) Approximately how many states had high temperatures from 70° to 95°?

$$3 + 10 + 14 + 9 + 8 = \boxed{44 \quad \text{states}}$$

11) What percent of the state capitals had temperatures over 100°?

$$5/50 = \boxed{10\%}$$

12) In what interval is the median temperature?

$$50/2 = 25^{th} + 26^{th} \qquad \boxed{80 - 85}$$

Station 4

The following data represents the times (rounded to the nearest 5 seconds) for 20 sixth-graders to run 400 meters.

$$x_1 = 70, x_2 = 80, x_3 = 80, x_4 = 85, x_5 = 90, x_6 = 100, x_7 = 100,$$

$$x_8 = 100, x_9 = 100, x_{10} = 100, x_{11} = 100, x_{12} = 105, x_{13} = 105, x_{14} = 105,$$

$$x_{15} = 120, x_{16} = 130, x_{17} = 130, x_{18} = 130, x_{19} = 140, x_{20} = 150$$

For Questions 13-16, use the data above.

13) Find the mean, sample standard deviation, and sample variance of the data.

$\bar{x} = 106$ $S_x = 21.25$ Variance $= 21.25^2$

$= 451.56$

☆ CAN USE CALC

- STAT #1
- Enter data in List
- STAT ⟶ CALC ⟶ 1 VAR stats (mean)

14) Find $\displaystyle\sum_{i=1}^{10} x_i$. $70 + 80 + 80 + 85 + 90 + 100 + 100 + 100 + 100 + 100$

Sum = 905

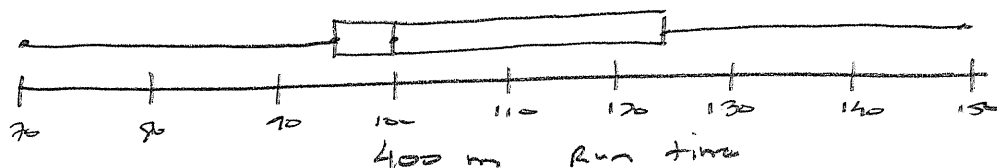15) What does your final answer in problem 2 ⁽¹⁴⁾ represent? (Explain what it means in context of the problem.)

The total time it took the first 10 6th graders to run 400 m.

16) Give the 5-number summary. Draw a boxplot of the data. Show all work to find outliers.

min = 70 $Q_1 = 95$ med = 100 $Q_3 = 125$ max = 150

IQR : 125 - 95 = 30

95 - 1.5 (30) = 50 ↓   No outliers

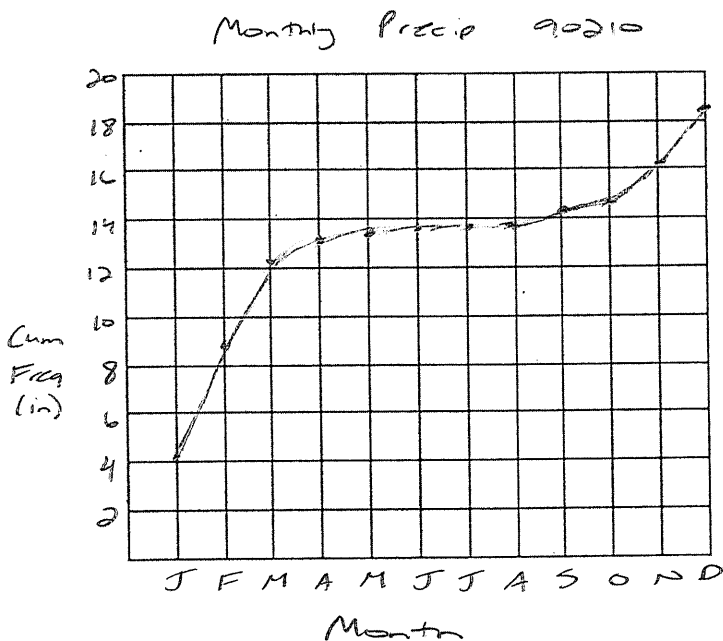125 + 1.5 (30) = 170 ↑

400 m Run time

Station 5

For questions 17-21, use the table of average monthly precipitation for zip code 90210.

Monthly Precipitation Zip Code 90210		
Month	Precipitation (Inches)	Cumulative Frequency
Jan	4.09	4.09
Feb	4.93	9.02
March	3.34	12.36
April	0.86	13.22
May	0.34	13.56
June	0.11	13.67
July	0.02	13.69
August	0.13	13.82
Sept	0.32	14.14
Oct	0.57	14.71
Nov	1.35	16.06
Dec	2.39	18.45

Source: The Weather Channel

Monthly Precip 90210

Cum Freq (in)

J F M A M J J A S O N D

Month

17) Complete the table.

18) Draw a cumulative frequency line graph of the data.

19) When has half of the annual precipitation fallen?

$$(0.5)(18.45) = 9.225$$

MARCH

20) When has three quarters of the annual precipitation fallen?

$$(0.75)(18.45) = 13.8375$$

SEPT

21) What percent of the annual precipitation has fallen by the end of July?

$$\frac{13.69}{18.45} = 74.2\%$$

Station 6

The table below shows the number of home runs that baseball player Roger Maris hit during his ten years in the American League.

Year	Homerun	Relative Frequency
1	14	$^{14}/_{261} = 0.05$
2	28	$^{28}/_{261} = 0.11$
3	16	$^{16}/_{261} = 0.06$
4	39	$^{39}/_{261} = 0.15$
5	61	$^{61}/_{261} = 0.23$
6	33	$^{33}/_{261} = 0.13$
7	23	$^{23}/_{261} = 0.09$
8	26	$^{26}/_{261} = 0.10$
9	8	$^{8}/_{261} = 0.03$
10	13	$^{13}/_{261} = 0.05$

Total: 261

For questions 22-24, use the table above.

22) How many homeruns did Roger Maris hit during his 10 years in the American League?

261 Homeruns

23) Complete the relative frequency table. Round answers to the nearest hundredth.

See table

24) In what year did Roger Maris hit 35% of his overall homerun total?

$(.35)(261) = 91.35$

Year 4