

Name: _____

S.G.H.S. - AUG 2007

Year 10 Topic Test – Statistics

Time Allowed: 50 minutes

1. The results of 25 Year One students in a weekly spelling test are:-

7 8 9 10 4 7 6
4 5 3 8 5 6 7
9 9 8 7 6 5 7
8 6 4 9

x	tally	f	$f \times x$	cf

- a. Complete the frequency distribution table above.
- b. Find the range. _____
- c. Find the mode. _____
- d. Find the median. _____
- e. Calculate the mean, using whichever method you prefer.

- f. On the graph paper provided, draw a frequency histogram and polygon.

2. For the scores:

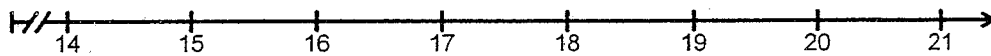
18 20 16 16 18 14 18 21

Find:

a) The median _____

b) The interquartile range _____

c) Draw a box and whiskers plot for this data.

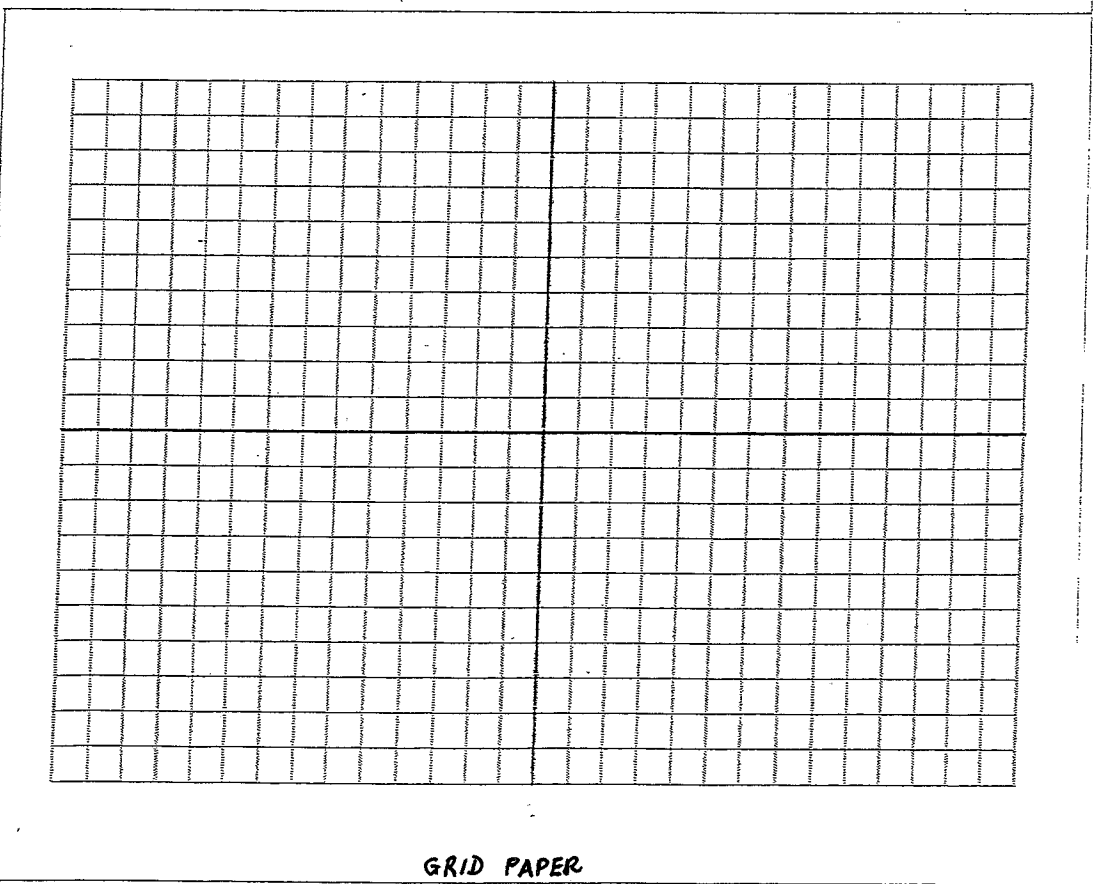
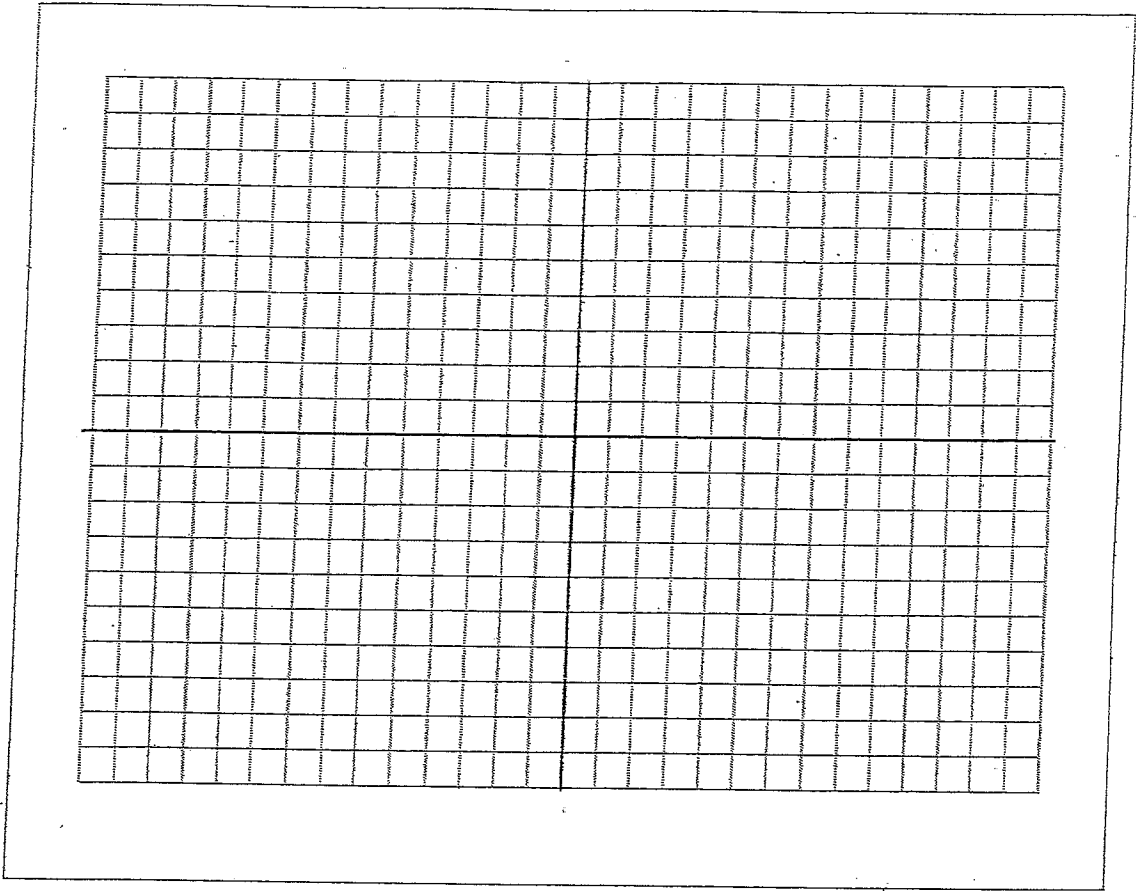


3. Jodie notes the time she devotes to homework each night for 30 consecutive school days. The results (in minutes) are:

25 72 64 38 29 36 42 63 49 50
 39 55 61 59 27 39 54 27 60 32
 42 46 54 71 27 52 68 63 69 60

a. By taking the group 25 – 29 as the first class, construct a grouped frequency distribution table in the space below. (3)

Class	c.c	Frequency	Fx	cf



GRID PAPER

- b. Calculate the mean. _____
- c. Within which group is the median _____
- d. Draw a cumulative frequency histogram and polygon on the grid paper.
4. Eleanor has an average of 76% after three tests this semester. What mark does she need in the next test in order to raise her average to 80%?
5. A dart was thrown 20 times at a dartboard. The results were recorded in the form of a stem and leaf plot.

Stem	Leaf
3	2 5
4	0 1 5 7
5	3 4 6 7 9
6	1 2 3 5 9
7	3 4 4 6

Find the interquartile range.

6. Find the standard deviation for the scores below:

21 19 12 8 23 6 30

7. The table shows Jessica's results on consecutive class tests.

	Mark	\bar{x}	δ
Test 1	69	60	6
Test 2	82	72	10

On which test did Jessica perform better, relative to the class? Justify your answer.

8. Shoe laces for a particular new line of joggers are manufactured 60 cm long with a standard deviation of 0.5 cm. What percentage of shoelaces would:

a. Be longer than 61.5 cm?

b) ~~Be between 61 and 62 cm long?~~

c) Be between 60 and 60.5 cm long?

Year 10 Topic Test – Statistics

Time Allowed: 50 minutes

1. The results of 25 Year One students in a weekly spelling test are:-

7 8 9 10 4 7 6
 4 5 3 8 5 6 7
 9 9 8 8 7 6 5 7
 8 6 6 4 9

Score	Frequency	Relative Frequency	Class	Frequency
3	I	1/25	1	1
4	III	3/25	3	12
5	III	3/25	3	15
6	IIII	4/25	4	24
7	IIII	4/25	5	35
8	IIII	4/25	4	32
9	IIII	4/25	4	36
10	I	1/25	1	10
			25	167

- Complete the frequency distribution table above.
- Find the range. 7 (1)
- Find the mode. 7 (1)
- Find the median. 7 (1)
- Calculate the mean, using whichever method you prefer. (2)

$$\bar{x} = \frac{\sum fx}{\sum f} = \frac{167}{25} = 6.68$$

f. On the graph paper provided, draw a frequency histogram and polygon. (4)

2. For the scores:

18 20 16 16 18 14 18 21

14 16 16 18 18 18 19 20 21

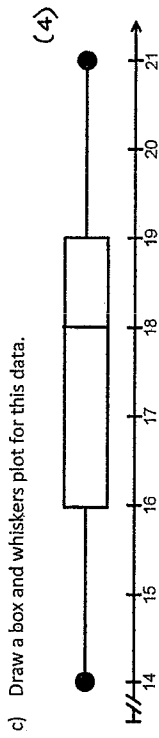
Q1 = 16

Q3 = 19

Find:

a) The median 18 (1)

b) The interquartile range
 $IQR = Q3 - Q1 = 19 - 16 = 3$ (2)



3. Jodie notes the time she devotes to homework each night for 30 consecutive school days. The results (in minutes) are:

25 72 64 38 29 36 42 63 49 50
 39 55 61 59 27 39 54 27 60 32
 42 46 54 71 27 52 68 63 69 60

a. By taking the group 25 – 29 as the first class, construct a grouped frequency distribution table in the space below. (3)

Class	c.c	Frequency	Fx	cf
25 – 29	27	5	135	5
30 – 34	32	1	32	6
35 – 39	37	4	148	10
40 – 44	42	2	84	12
45 – 49	47	2	94	14
50 – 54	52	4	208	18
55 – 59	57	2	114	20
60 – 64	62	6	372	26
65 – 69	67	2	134	28
70 – 74	72	2	144	30

b. Calculate the mean. $\bar{x} = \frac{1465}{30} = 48.83$ (2 dec. pl) (1)

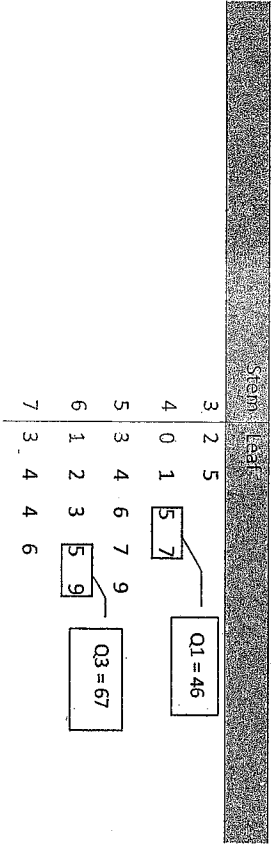
c. Within which group is the median 50 - 54 (1)

d. Draw a cumulative frequency histogram and polygon on the grid paper. (4)

4. Eleanor has an average of 76% after three tests this semester. What mark does she need in the next test in order to raise her average to 80%? (3)

Let the mark needed = x
 $80 = \frac{76 \times 3 + x}{4}$
 $320 = 228 + x$
 $x = 92$

5. A dart was thrown 20 times at a dartboard. The results were recorded in the form of a stem and leaf plot.



Find the interquartile range.
 $IQR = Q3 - Q1$
 $= 67 - 46$
 $= 21$ (2)

6. Find the standard deviation for the scores below:
 21 19 12 8 23 6 30
8.04 (2 dec. pl) (1)

7. The table shows Jessica's results on consecutive class tests.

Test	Mark	\bar{x}	s
Test 1	69	60	6
Test 2	82	72	10

On which test did Jessica perform better, relative to the class? Justify your answer. (2)
She scored better in Test 1 as she is 1.5 standard deviations above the mean, whereas in Test 2, she is only 1 standard deviation above the mean.

8. Shoe laces for a particular new line of joggers are manufactured 60 cm long with a standard deviation of 0.5 cm. What percentage of shoelaces would:

a. Be longer than 61.5 cm? 0.15% (1)

b. ~~Be between 61 and 62 cm long?~~

c) Be between 60 and 60.5 cm long? 34% (1)

Score (class centre)

