This is a Class 1 exam

Lebanon Evangelical School
for Boys and Girls
Loueizeh - Baabda

Stage Exam 03
FEB2023

Do NOT write in this box. Your MARK will be placed here.

Subject :	A Level : Maths M0
Class :	11A and 12A
Teacher :	Farhan B
Duration :	1 hour

Calculators will be ALLOWED
Write your answers on the exam papers

Your name :		*Time taken to complete exam*
Your Class :		
Exam Room :		
How many sheets, including cover sheet :		

- Do not open this paper until the teacher in charge instructs you to do so.
- The most important thing to remember in taking an exam is NEVER PANIC.
- If you are caught cheating in this exam, you will be awarded zero for ALL exams that are taken on this day.

№ 1

Suppose we have the following two datasets that show the number of points scored by members of two basketball teams:

Mavericks: 2, 4, 8, 12, 12, 12, 15, 19, 23, 25, 31, 35, 38
Lakers: 6, 6, 7, 12, 13, 15, 16, 20, 22, 24, 28, 30, 31

(a) Create a back to back stem-and-leaf plot for these datasets

	Stems	

(b) What is the range for number of points scored for each team? [2 marks]

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(c) What is the mode for number of points scored for each team? [2 marks]

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(d) What is the median for number of points scored for each team? [2 marks]

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(e) Which team had more players score 20 or more points? [2 marks]

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(f) Which team had the highest-scoring player? [2 marks]

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№ 2

Miss Jones gives her class a test. The test is out of 40 marks.

Here are their scores. 31 29 20 39 35 32 38 32 18 25 32 36, 33, 19, 28, 30

(a) List the scores in increasing order [1 mark]

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(b) Work out the range. [1 mark]

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(c) Work out the mode. [2 marks]

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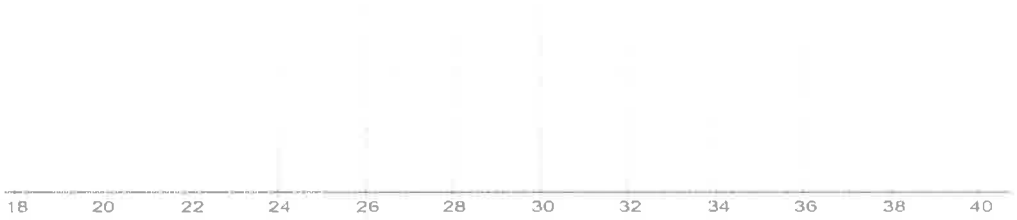
(d) Work out the median, the lower and the upper quartiles [6 marks]

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(e) Draw a box-plot [3 marks]



№ 3

The mean height of a squad of 24 players is 185cm. A new player who has a height of 175 cm joins the squad. Work out the new mean height of the squad. [3 marks]

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№ 4

Hugo has five cards. Shown below are the numbers on three of the cards.

12	25	17		

The mean of the five numbers on the cards is 16

The mode of the five numbers on the cards is 12

Work out the median of the five numbers on the cards. [4 marks]

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№ 5

The masses of some rugby players are recorded in the table below.

Weight (x in kg)	Frequency	Midpoint	xf
$60 < x \leq 64$	10		
$64 < x \leq 68$	20		
$68 < x \leq 72$	30		
$72 < x \leq 76$	15		
$76 < x \leq 80$	18		
$80 < x \leq 84$	7		
Total			

(a) Calculate an estimate of the mean weight. [3 marks]

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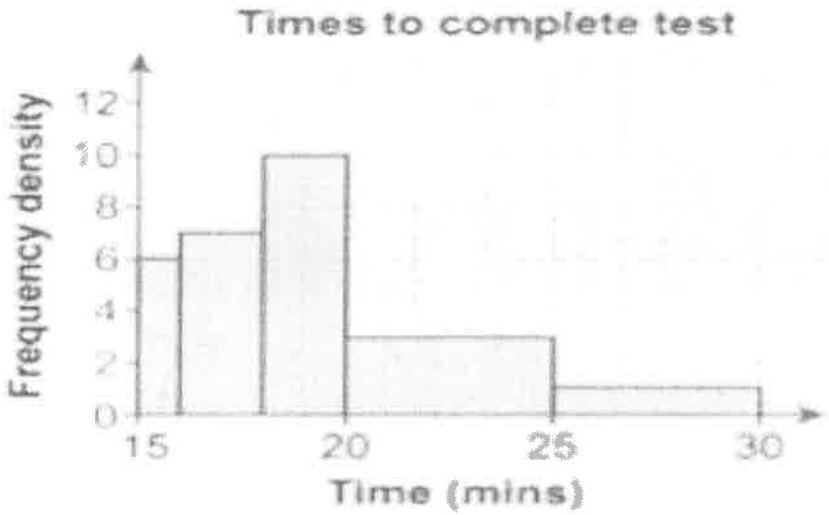
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(b) Find the median class. [1 mark]

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№ 6

[5 marks]



The histogram shows the times taken for a number of students to complete an arithmetic test.

a) Draw a grouped frequency table for the data

Classes	Frequency Density	Class width	Frequency	Midpoint	xf
Total					

b) Work out an estimate for the mean time taken

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c) How many students took longer than 19 minutes to complete the test?

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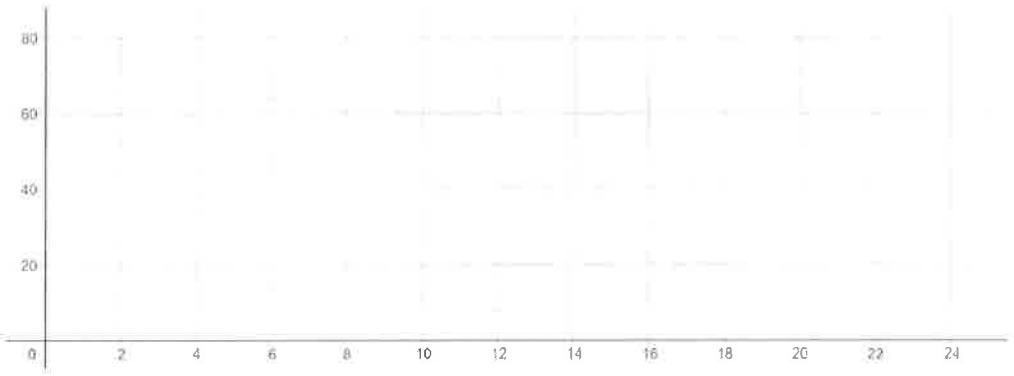
№ 7

[4 marks]

The table shows the age, x, and mass, y, of a sample of 11 boys

x(years)	2	4	6	8	10	12	14	16	18	20	22
$y\ (kg)$	13	17	22	26	32	41	50	59	68	72	73

a) Draw a scatter graph of this data,



b) Assuming that weight can be modelled using a line of best fit:

(i) Draw a line of best fit

(ii) Estimate the weight of a 15-year old

.....

(iii) Estimate the weight of a 24-year old

.....

(iv) Which one of the two estimates you did in the previous questions is more accurate?

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№ 8

The sizes of shoes sold in a shop during a morning are:

5, 5.5, 5.5, 6, 7, 7, 7, 7, 8.5, 9, 9, 10, 11, 11.5, 12, 13

a) Work out the mean, median and mode of these shoe sizes

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b) The shop manager wishes to buy more stock but is only allowed to buy shoes of one size. Which one these averages would be the most appropriate to use? Give reasons for your answer

.....

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.....

№ 1
Suppose we have the following two datasets that show the number of points scored by members of two basketball teams:

Mavericks: 2, 4, 8, 12, 12, 12, 15, 19, 23, 25, 31, 35, 38
Lakers: 6, 6, 7, 12, 13, 15, 16, 20, 22, 24, 28, 30, 31

(a) Create a back to back stem-and-leaf plot for these datasets

Mavericks	Stems	Lakers
8 4 2	0	6 6 7
9 5 2 2 2	1	2 3 5 6
5 3	2	0 2 4 8
8 5 1	3	0 1

(b) What is the range for number of points scored for each team? [2 marks]

Mavericks 38 − 2 = 36

Lakers 31 − 6 = 25

(c) What is the mode for number of points scored for each team? [2 marks]

Mavericks 12

Lakers 6

(d) What is the median for number of points scored for each team? [2 marks]

Mavericks 15

Lakers 16

(e) Which team had more players score 20 or more points? [2 marks]

Lakers 6 players

(f) Which team had the highest-scoring player? [2 marks]

Maverick 38

№ 2

Miss Jones gives her class a test. The test is out of 40 marks.

Here are their scores. 31 29 20 39 35 32 38 32 18 25 32 36, 33, 19, 28, 30

(a) List the scores in increasing order [1 mark]

18, 19, 20, 25, 28, 29, 30, 31, 32, 32, 32, 33, 35, 36, 38, 39

(b) Work out the range. [1 mark]

Highest − lowest = 39 − 18 = 21

(c) Work out the mode. [2 marks]

32

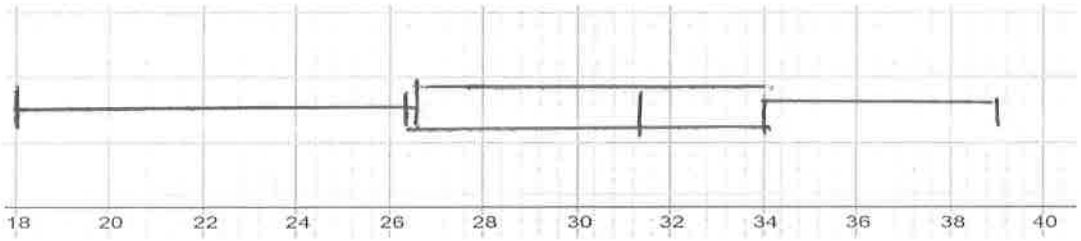
(d) Work out the median, the lower and the upper quartiles [6 marks]

Median (31 + 32) / 2 = 31.5

Lower Quartile (25 + 28) / 2 = 26.5

Upper Quartile (33 + 35) / 2 = 34

(e) Draw a box-plot [3 marks]



№ 3

The mean height of a squad of 24 players is 185cm. A new player who has a height of 175 cm joins the squad. Work out the new mean height of the squad. [3 marks]

Total height of 24 players 24 x 185 = 4440 cm

Total height of 25 players 4440 + 175 = 4615 cm

new mean 4615 ÷ 25 = 184.6

№ 4

Hugo has five cards. Shown below are the numbers on three of the cards.

12	25	17		

The mean of the five numbers on the cards is 16
The mode of the five numbers on the cards is 12
Work out the median of the five numbers on the cards. [4 marks]

mode is 12 so the fourth card is 12, the fifth is x
mean is 16, $(12+25+17+12+x) \div 5 = 16$
$66+x=80$; $x=80-66=14$
12, 12, 14, 17, 25, median = 14

№ 5

The masses of some rugby players are recorded in the table below.

Weight (x in kg)	Frequency	Midpoint	xf
$60 < x \leq 64$	10	62	620
$64 < x \leq 68$	20	66	1320
$68 < x \leq 72$	30	70	2100
$72 < x \leq 76$	15	74	1110
$76 < x \leq 80$	18	78	1404
$80 < x \leq 84$	7	82	574
Total	100		7128

(a) Calculate an estimate of the mean weight. [3 marks]

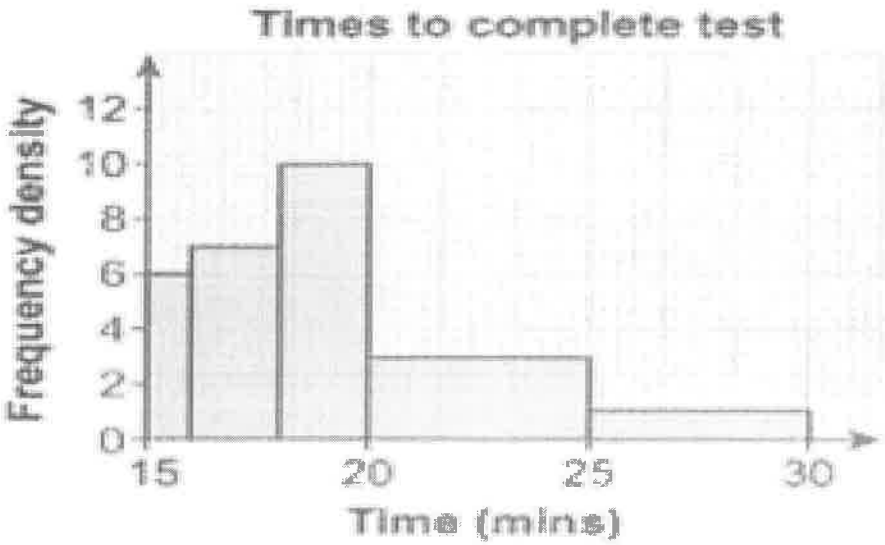
$7128 \div 100 = 71.28$ kg

(b) Find the median class. [1 mark]

]68, 72]

№ 6

[5 marks]



The histogram shows the times taken for a number of students to complete an arithmetic test.

a) Draw a grouped frequency table for the data

Classes	Frequency Density	Class width	Frequency	Midpoint	xf
15-16	6	1	6	15.5	93
16-18	7	2	14	17	238
18-20	10	2	20	19	380
20-25	3	5	15	22.5	337.5
25-30	1	5	5	27.5	137.5
Total			60		1186

b) Work out an estimate for the mean time taken

1186 ÷ 60 = 19.77

c) How many students took longer than 19 minutes to complete the test?

15 + 5 = 20 students

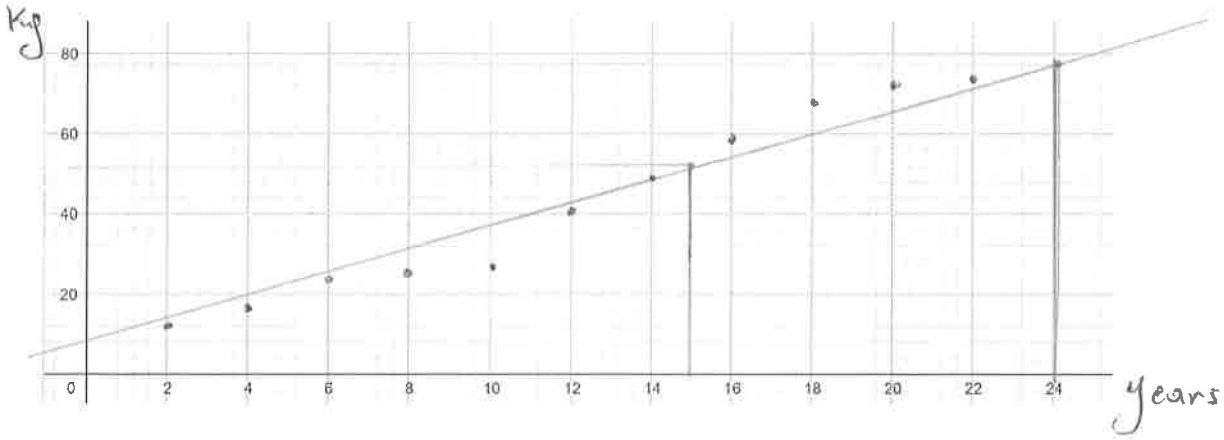
№ 7

[4 marks]

The table shows the age, x, and mass, y, of a sample of 11 boys

x(years)	2	4	6	8	10	12	14	16	18	20	22
$y\ (kg)$	13	17	22	26	32	41	50	59	68	72	73

a) Draw a scatter graph of this data,



b) Assuming that weight can be modelled using a line of best fit:

(i) Draw a line of best fit

(ii) Estimate the weight of a 15-year old

52 Kg

(iii) Estimate the weight of a 24-year old

78 Kg

(iv) Which one of the two estimates you did in the previous questions is more accurate?

The first is more accurate because it is an interpolation

№ 8

The sizes of shoes sold in a shop during a morning are:

5, 5.5, 5.5, 6, 7, 7, 7, 7, 8.5, 9, 9, 10, 11, 11.5, 12, 13

a) Work out the mean, median and mode of these shoe sizes

mean = 134 ÷ 16 = 8.375

median = (7 + 8.5) ÷ 2 = 7.75

mode = 7

b) The shop manager wishes to buy more stock but is only allowed to buy shoes of one size. Which one these averages would be the most appropriate to use? Give reasons for your answer

the most appropriate is the mode, it represents the most bought shoe-size