

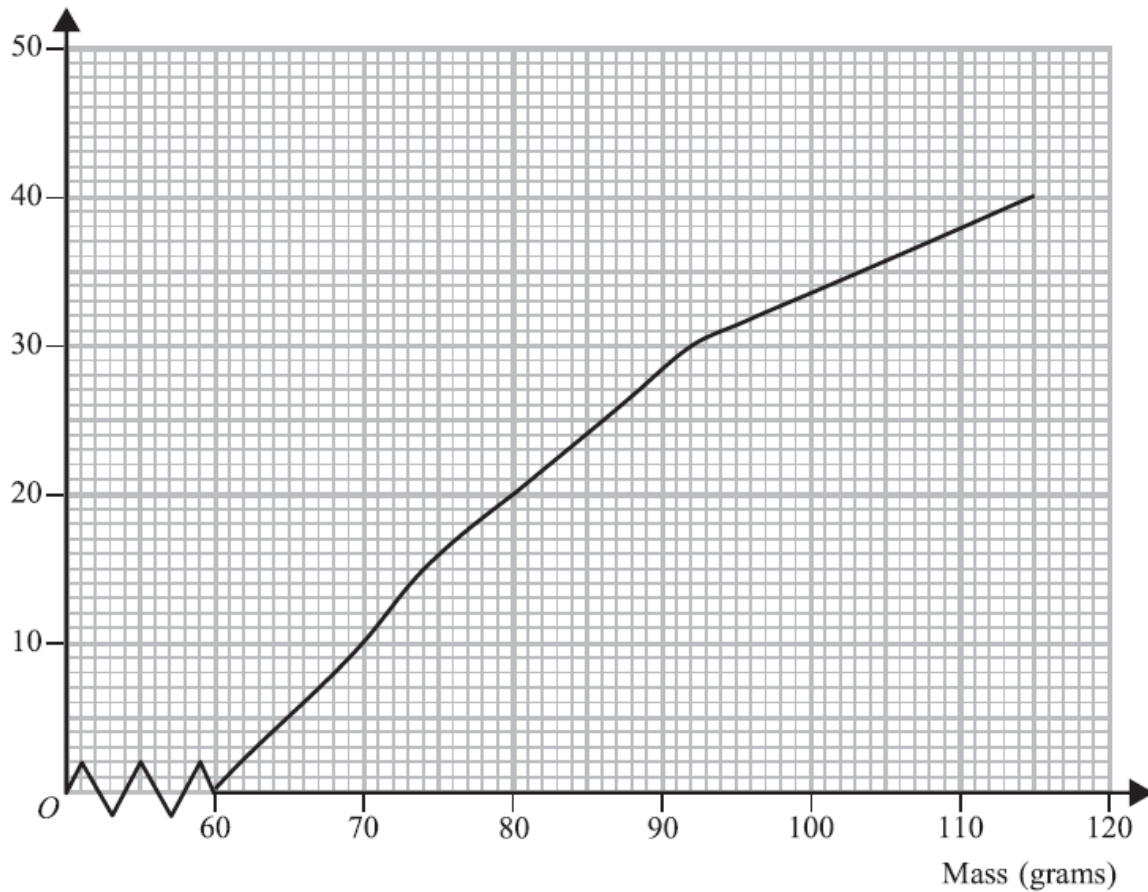
IGCSE Mathematics Revision

Session 8

6.1 Graphical Representation of Data	construct and interpret histograms construct cumulative frequency diagrams from tabulated data	For unequal class intervals
6.2 Statistical Measures	estimate the median from a cumulative frequency diagram understand the concept of a measure of spread estimate the interquartile range from given data or from a cumulative frequency diagram	The terms upper quartile and lower quartile may be used
6.3 Probability	draw and use tree diagrams determine the probability that two or more independent events will both occur use simple conditional probability when combining events apply probability to simple problems	Picking two balls out of a bag, one after the other, without replacement

A sample of 40 stones was collected.

The cumulative frequency graph gives information about their masses.



(a) Find an estimate of the median mass.

..... g
(1)

(b) Find an estimate of the interquartile range of the masses.

..... g
(2)

(c) How many stones had masses between the lower quartile and the upper quartile?

.....
(1)

(d) Find an estimate of the number of stones which had masses of more than 100 grams.

.....
(2)

(Total 6 marks)

Here are the marks scored in a maths test by the students in two classes.

Class A 2 13 15 16 4 6 19 10 11 4 5 15 4 16 6

Class B 12 11 2 5 19 14 6 6 10 14 9

(a) Work out the interquartile range of the marks for each class.

Class A

Class B

(4)

(b) Use your answers to give one comparison between the marks of Class A and the marks of Class B.

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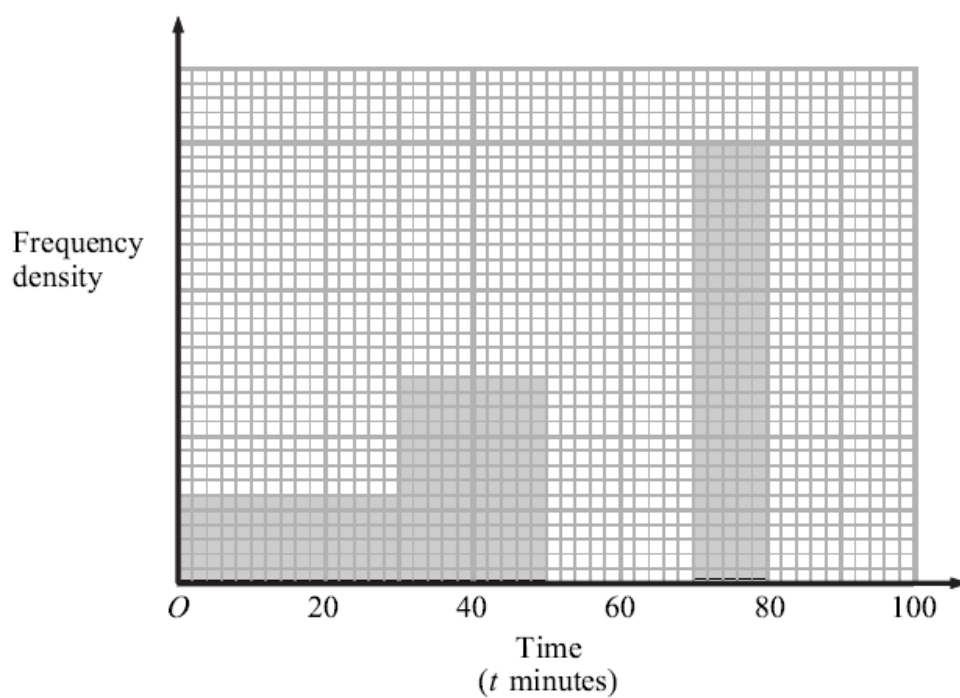
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(1)

(Total 5 marks)

The unfinished table and histogram give information about the times taken by some students to complete a science test.

Time (t minutes)	Frequency
$0 < t \leq 30$	
$30 < t \leq 50$	70
$50 < t \leq 70$	85
$70 < t \leq 80$	
$80 < t \leq 90$	40



- (a) Use the information in the table to complete the histogram. (2)
- (b) Use the information in the histogram to complete the table. (2)

(Total 4 marks)

In order to start a course, Bae has to pass a test.
He is allowed only two attempts to pass the test.

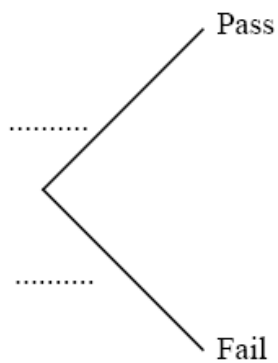
The probability that Bae will pass the test at his first attempt is $\frac{2}{5}$.

If he fails at his first attempt, the probability that he will pass at his second attempt is $\frac{3}{4}$.

(a) Complete the probability tree diagram.

First attempt

Second attempt



(3)

(b) Calculate the probability that Bae will be allowed to start the course.

.....
(3)

(Total 6 marks)

Here are five shapes.



Four of the shapes are squares and one of the shapes is a circle.

One square is black.

Three squares are white.

The circle is black.

The five shapes are put in a bag.

- (a) Jasmine takes a shape at random from the bag 150 times.
She replaces the shape each time.

Work out an estimate for the number of times she will take a white square.

.....
(3)

- (b) Alec takes a shape at random from the bag and does **not** replace it.
Bashir then takes a shape at random from the bag.

Work out the probability that

- (i) they both take a square,

- (ii) they take shapes of the same colour.

.....
(5)

(Total 8 marks)

The sides of a fair six-sided dice are numbered from 1 to 6
The dice is thrown three times.
Find the probability that it shows a 1 at least twice.

.....

(Total 4 marks)

A fair, 6-sided dice has faces numbered 1, 2, 3, 4, 5 and 6
When the dice is thrown, the number facing up is the score.
The dice is thrown three times.

(a) Calculate the probability that the total score is 18

.....

(2)

(b) Calculate the probability that the score on the third throw is exactly double the **total** of the scores on the first **two** throws.

Answers

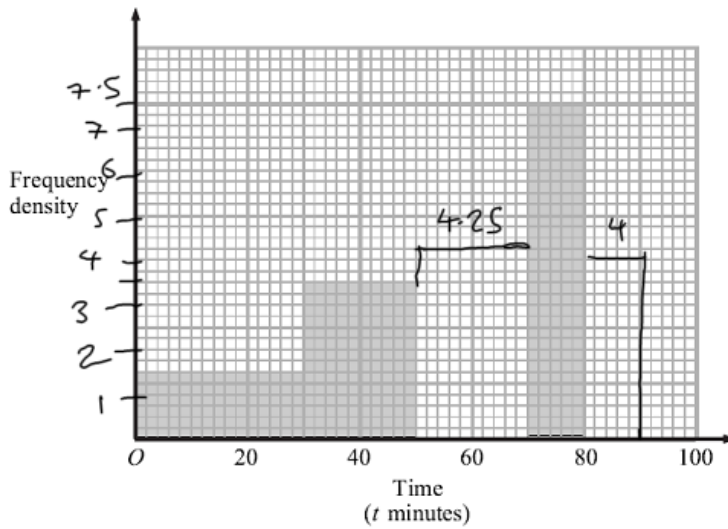
80, 22, 20, 6 or 7

10, 8. Central 50% of marks in class B are less spread out than those of A

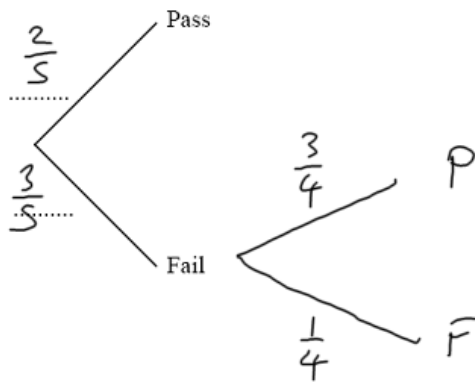
Time (t minutes)	Frequency
$0 < t \leq 30$	45
$30 < t \leq 50$	70
$50 < t \leq 70$	85
$70 < t \leq 80$	75
$80 < t \leq 90$	40

freq
class width

1.5
3.5
4.25
7.5
4



$(14 \text{ sq} = 3.5)$
 $1 \text{ sq} = \frac{3.5}{14} = 0.25$



b) 0.85

90, 0.6, 0.4

—, —, 0.421