



education
MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

NKANGALA DISTRICT CLUSTERS

MATHEMATICS

SEPTEMBER 2023

GRADE 11

MONTHLY TEST

MARKS: 50

TIME: 60 minutes

This question paper consists of 6 pages including the cover page.

INSTRUCTIONS AND INFORMATION:

- 1 This question paper consists of 4 questions. Answer ALL questions
- 2 Clearly show all calculations.
- 3 An approved calculator (non-programmable and non-graphical) may be used, unless otherwise stated.
- 4 Number the answers correctly according to the numbering system used in this question paper.
- 5 If necessary, answers should be rounded off to TWO decimal places, unless otherwise stated.
- 6 Diagrams are not necessarily drawn to scale.
- 7 It is in your own interest to write legibly and to present your work neatly.

QUESTION 1

The following table shows a sleeping pattern record, in hours, of ten Grade 11 learners:

Learner	1	2	3	4	5	6	7	8	9	10
Number of hours	7	8	8	5	6	3	4	8	7	10

- 1.1 Calculate the mean number of hours slept by the learners. Give the answer correct to TWO decimal places (2)
- 1.2 Write down the mode average for the data set. (1)
- 1.3 Write down the five number summary for the data. (3)
- 1.4 Determine the interquartile range for the data set. (2)
- 1.5 Draw the box and whisker diagram for this data set. (2)
- 1.6 Refer to the diagram and comment on the skewedness of the data, and give a reason for your answer. (2)
- 1.7 Calculate the standard deviation for this data. Give your answer correct to TWO decimal places. (2)
- 1.8 A learner is considered to have slept well if his sleeping is above one standard deviation from the mean. How many learners slept well? (2)

(3)

[19]

QUESTION 2

The different ages of teachers at a certain school in Middelburg are given in the table below:

AGE	FREQUENCY	CUMULATIVE FREQUENCY
$25 < A \leq 30$	2	
$30 < A \leq 35$	8	
$35 < A \leq 40$	4	
$40 < A \leq 45$	5	
$45 < A \leq 50$	11	
$50 < A \leq 55$	19	
$55 < A \leq 60$	20	
$60 < A \leq 65$	6	

- 2.1 Complete the following table below in your ANSWER BOOK. (4)
- 2.2 Draw an ogive curve in your Answer Book to represent the data in the table. (4)
- 2.3 Use your graph to find an estimate of the median age. (2)
- 2.4 The school would like to give all teachers older than 57 a special present. Use your graph to find an estimate for the percentage of teachers older than 57 years of age. (2)

[12]

QUESTION 3

3.1 Two events A and B are such that:

* $P(\text{not } A) = 0,45$

* $P(B) = 0,3$

* $P(A \text{ or } B) = 0,685$

Are events A and B independent? Justify your answer.

(5)

3.2 A survey was done among a group of 75 learners to determine which sports they watch on television. They chose from athletics(A), netball(N) and rugby(R). Some of the information that was collected is as follows:

* 12 learners watch netball, rugby and athletics

* 25 learners watch rugby and athletics

* 22 learners watch netball and athletics

* 38 watch rugby

* 5 learners watch only netball and rugby

* 9 learners watch netball only

* 4 learners watch athletics only

3.2.1 Draw a Venn diagram for the given information above.

(5)

3.2.2 Calculate the probability that a learner selected at random watches:

(a) athletics or netball.

(2)

(b) at least two sports on television.

(2)

(c) does not watch sports.

(2)

[16]

QUESTION 4

A box of 40 tablets is sent to a school in Middelburg for the grade 12 learners. The school is not aware that 5 of the tablets are defective. Two tablets are selected at random from the box, the first one not being replaced before the second one is selected.

- 4.1 What is the probability that the first tablet chosen is not defective? (1)
- 4.2 What is the probability that if two tablets are selected, ONE tablet is defective and the other tablet is not? (3)
- 4.3 What is the probability that if two tablets are selected, BOTH are defective? (3)
- [7]**

TOTAL MARKS: 50