

456/1
MATHEMATICS
PAPER 1
July/August 2026
2¼ hours



WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Certificate of Education

MATHEMATICS

Paper 1

2 hours 15 minutes

INSTRUCTIONS TO CANDIDATES:

*This paper consists of **two** sections; **A** and **B**. It has **six** examination items.*

*Section **A** has **two** compulsory items.*

*Section **B** has **two** parts; **I** and **II**. Respond to **one** item from each part.*

*Respond to **four** items in all.*

*Any additional item(s) responded to will **not** be scored.*

*All responses **must** be written in the Answer booklet(s)/sheets provided.*

Graph Paper is provided.

Silent non-programmable scientific calculators and mathematical tables with a list of formulae may be used.



SECTION A

Respond to **all** items in this section.

Item 1

Your uncle in Mpigi district would like to set up a farm in your village. However he has no land, but you have identified the land that he can buy. This land you got occupies an area of 8.5 cm^2 on a map of scale 1:1500 but he has told you that if this land is less than 2000 m^2 , he will plant on maize and beans and if it is more than 2000 m^2 , he will plant on coffee and cocoa in the ratio 4:5 and for maize : beans = 3:4

Your, uncle has instructed you to withdraw shillings one million six hundred eighty thousand from his bank account using a four digit pin in base three but he saved it as 213_{four} . $\frac{1}{4}$ of this money will be used on your transport and lunch and 40% of the remainder will be used to buy metallic poles to fence the land.

He expects a total of shillings 2,800,000 from maize and beans, Shs. 3,600,000 from coffee and cocoa.

Task

- Help your uncle to determine which type of crops to plant on the land.
- Determine the actual pin you will use to withdraw the money.
- How much money will be used to buy the metallic poles?
- What is the expected amount from maize?

Item 2

Anisha has organized a family meeting and she expects to have 50 family members attending. She will only start the meeting at 2:00 pm if at least 45 members have arrived. She arrived at the venue at 7:00 am and at 8:00 am one member had arrived. At 9:00 am four members had arrived. At 10.00 am, 9 members had arrived and at 11:00 am, 16 members had arrived. She is wondering if by 2:00 pm the meeting will start if the members keep on arriving the same way.

Matovu deals in mobile phones. He wants to order, for twelve mobile phones but he does not know how much it will cost him. His assistant has informed him that when they ordered for five phones they paid Shs. 618,000 transport inclusive, when they ordered for eight phones, they paid Shs: 978,000 transport inclusive and unit prices being constant.

The supplier charges a constant fee on transport irrespective of the number of phones bought. Matovu wants to know the cost on transport and the total cost of ordering for twelve phones.

National forest Authority has realised that people are increasingly cutting down trees from Mabira forest. The officials studied the rate at which this was happening and recorded it as a function $f(x) = -x^2 + 5x + 6$ where x is the number of days of the week from Monday to Saturday. The officials had to write a report including a graphical representation of the number of trees cut during the above selected days of the week.

Task:

- Determine whether the meeting will start by 2:00 pm
- Help Matovu to determine;
 - the constant transport costs.
 - the amount to be charged for 12 phones.
- Help the officials to;
 - draw the graph showing the number of trees that were cut during the selected number of days.
 - obtain the day(s) on which many trees were cut.

SECTION B

This section has two parts; I and II

Part I

Respond to only one item from this part.

Item 3

The sports master in a certain school is developing a team of learners, who will participate in the regional school's competition in Volleyball and Tennis.

This will be possible if 65% and above of the learners are good at volley ball. Out of 32 learners, 17 were excellent in Tennis while 12 were excellent at volleyball only. There are some learners who were not good at any of the two games. The number of those who were excellent at both of the games was equal to the number of those who were not good at any of the two.

Robert a science teacher is investigating the relationship between Maths (x) and Physics (y). He wants to use an appropriate graph to visualise this relationship and use it to make the necessary predictions. He summarized the previous scores in both subjects.

Maths (20)	40	60	55	30	50	80	25	92	56	63
Physics (2)	87	73	85	95	80	70	97	60	86	80

Task

- (a) Will the sports master be able to develop the team?
- (a) Help Robert to;
 - (i) develop an appropriate graph to visualise the relationship between scores of Maths and Physics.
 - (ii) use the graph above to predict the scores of Maths for a learner who scored 63% in Physics.

Item 4

Johnson wants to play a lottery game. The terms and conditions of the game are; throw two dice, note the product of the outcomes and find out the chance of the product being divisible by 4. If the chance is greater than 0.5, then you win and otherwise you lose. Johnson is wondering whether he will win or not.

Global Transport Company has taxis and buses that follow a chart route of Kampala to Bukedea. The two towns are 300 km apart. One day, a taxi left Kampala at 7:00 am moving at average speed of 60 km/hr. After covering 150 km, the taxi stopped for passenger to refresh. This lasted for 30 minutes and the taxi resumed its journey but with an increased speed of 15 km/hr more than the original until it reached Bukedea. The same day, a bus left Bukedea at 7:30 moving at average speed of 80 km/hr nonstop to Kampala. The bus driver had a package to deliver upon arrival, however, during the journey the bus driver received a call instructing him to give the package to the taxi driver when they meet to return it to Bukedea. The bus driver did as instructed but failed to note the time of the handover and the distance he had covered.

Task

- (a) Help Johnson to find out whether he will win the lottery game.
- (b) Help the bus driver to determine;
 - (i) the time at which the handover took place.
 - (ii) the distance he had covered by the time of the hand over.

PART II

Respond to only one item from this part.

Item 5

On a farm, a man ties a bull and a cow to two fixed tree stumps opposite each other. The bull is tied to a point A using a rope of length 10 m. The cow is tied to another point B using a rope of length 8 m. Each of these animals grazes in a circular region centred at its tying point. Where $AB = 12$ m. The worker had to collect water from the well to give to the bull. He moved from the bull a distance of 15 m on a bearing of 060° to collect the jerry can and after he moved on a bearing of 150° for 25 m to the well. On coming back, he used a direct route so as to give water to the bull.

Task

- (a) Determine the area of the region common to both grazing animals.
- (b) Find the direct distance the worker will walk from the well to the bull.

Item 6

Bob want to start a business worth Shs. 7,000,000. His friend in USA sent him Us dollars 1,400. He has been informed that current exchange rate is $\$1 = \text{UGX } 3,800$. He wants to borrow the remaining amount from the cheapest of the two banks.

Bank A has accepted, to give him a loan of the remaining amount at a simple interest rate of 20% for a period of twenty four months.

Bank B has accepted to give him a loan of the remaining amount at a compound interest rate of 14% for a period of 24 months. However, he does not know which bank to use.

Alex wanted to buy a car whose market price is Ugx. 32,000,000 on hire purchase since he does not have enough money to pay cash.

He has been given two alternatives;

- (i) Pay 25% of the cash value and monthly instalments of 1,125,000 shillings monthly for 2 years.
 - (ii) Pay $\frac{1}{8}$ of the cash value and shillings 315,000 weekly for 104 weeks.
- He does not know which arrangement to undertake.

Task

- (a) Advice Bob on the cheapest bank to acquire the loan from.
- (b) Help Alex to determine the less costly hire purchase alternative.

END