THE KENYA NATIONAL EXAMINATIONS COUNCIL (KNEC)

(Format Reference Only – Independently Produced Prediction Paper)

KJSEA 2026 PREDICTION EXAMINATION
MATHEMATICS

903

Oct. 2026 – Time: 2 Hours 30 Minutes

Name: _____ Assessment No.: _____

School: _____ Class/Grade: Grade 9

INSTRUCTIONS TO CANDIDATES

1. This paper consists of two sections: Section A and Section B.
2. Section A carries 20 marks and Section B carries 80 marks, making a total of 100 marks.
3. Answer ALL the questions in Section A and Section B.
4. In Section A, for each question, four possible answers A, B, C and D are given. Choose the correct answer.
5. In Section B, answer the questions in the spaces provided, showing all the working clearly.
6. Non-programmable silent electronic calculators and mathematical tables may be used, except where stated otherwise.
7. Marks may be awarded for correct working even where the final answer is wrong.
8. This paper consists of 12 printed pages. Candidates should check to ascertain that all pages are printed as indicated and no questions are missing.

FOR EXAMINER'S USE ONLY

Section	Question	Maximum Marks	Candidate's Score
A	1 – 20	20	
B	21-25	17	
B	26-30	23	
B	31-35	23	
B	36-40	17	
	TOTAL	**100**	

This is an original, independently produced prediction paper prepared by analysing the pattern, topic weighting and question style of recent KJSEA Grade 9 Mathematics papers. It is not an official KNEC paper and is not affiliated with or endorsed by the Kenya National Examinations Council.

SECTION A (20 marks)

Answer ALL the questions in this section.

1. A packet contains number cards. Kanini picked cards with numbers 3, 8, 11 and 15 from the packet. Which of the following sets has prime numbers only?

A. 3 and 8
B. 3 and 11
C. 8 and 15
D. 11 and 15

2. There are 90 boys, 150 girls and 30 teachers in a school. The school formed groups with equal numbers of boys, girls and teachers. What is the largest number of groups that can be formed?

A. 15
B. 30
C. 270
D. 300

3. The temperature of a cold room was –6°C. The temperature dropped further by 9°C. What was the new temperature of the cold room?

A. –15°C
B. –3°C
C. 3°C
D. 15°C

4. Wanjiru intended to plant 60 seedlings. She allocated ■ (2/5) of an hour to plant each seedling. During the planting, she actually took ■/■■ of an hour to plant each seedling. Which of the following calculations gives the extra time Wanjiru used to plant all the seedlings?

A. (7/10 – 2/5) × 60
B. (7/10 + 2/5) × 60
C. (2/5 – 7/10) × 60
D. (2/5 × 7/10) × 60

5. A Grade 9 teacher had flash cards containing questions on indices. Kioko picked a flash card with the equation $4^x = 64$. What is the value of x?

A. 2
B. 3
C. 4
D. 16

6. The total number of animals on Kiptoo's farm is 34. There are x cows on the farm. The number of goats is twice the number of cows. The remaining animals are sheep. Which of the following expressions represents the number of sheep on the farm?

A. 34 – 3x
B. 34 – 2x
C. 34 – x
D. 34 + 3x

7. A school is planning to transport x number of learners for a music festival. For cost efficiency, the school has to transport at least 25 learners but not more than 45 learners. Which inequality represents this information?

A. $25 < x < 45$
B. $25 \leq x \leq 45$
C. $25 \leq x < 45$
D. $25 < x \leq 45$

8. Learners presented the number of fruits bought by two families over three months using a matrix with 3 rows and 4 columns. What is the order of the matrix?

A. 4 × 3
B. 3 × 4
C. 12 × 1
D. 1 × 12

9. The width of a door is 1.2 m. The door is opened through an angle of 60°. What is the length swept by the tip of the door? (Use $\pi = 3.142$)

A. 1.26 m
B. 2.51 m
C. 3.77 m
D. 7.54 m

10. A cylindrical bucket has a diameter of 28 cm. The bucket is filled with water to a height of 30 cm. What is the area of the bucket's surface that is in contact with the water? (Use $\pi = 22/7$)

A. 1 320 cm²
B. 2 640 cm²
C. 3 256 cm²
D. 4 400 cm²

11. A carton of juice is in the shape of a cuboid. The length of the carton is 6.5 cm, the width is 4 cm and the height is 10 cm. What is the capacity of the carton in litres?

A. 0.26 litres
B. 2.6 litres
C. 260 litres
D. 260 000 litres

12. The temperature of a gas was recorded as 300 K. Which of the following calculations gives the correct temperature of the gas in degrees Celsius?

A. 300 × 273
B. 300 ÷ 273
C. 300 + 273
D. 300 – 273

Use the following table, which shows the mobile money transaction charges for a mobile service provider, to answer questions 13 and 14.

Transaction range (Ksh)	Sending charges (Ksh)	Withdrawal charges (Ksh)
1 – 100	Free	Free
101 – 500	8	12
501 – 1 000	20	25
1 001 – 3 000	35	40
Above 3 000	50	60

13. According to the table, what is the sending charge for a transaction of Ksh 850?

A. Ksh 12
B. Ksh 20
C. Ksh 25
D. Ksh 35

14. Kioko had Ksh 5 000 in his mobile money account. He sent Ksh 2 000 to his brother and then withdrew Ksh 1 200. How much money did Kioko remain with in his mobile account?

A. Ksh 1 700
B. Ksh 1 725
C. Ksh 1 765
D. Ksh 1 800

15. Amani estimated the length of a table to be 2.4 m. She measured it and found the actual length to be 2.0 m. Which calculation gives the percentage error in her estimation?

A. (0.4/2.4) × 100%
B. (0.4/2.0) × 100%
C. (2.0/0.4) × 100%
D. (2.4/0.4) × 100%

16. The following are properties of a quadrilateral: (i) All sides are equal. (ii) The diagonals bisect each other at 90°. (iii) Opposite angles are equal. What is the name of the quadrilateral?

A. Square
B. Rhombus
C. Kite
D. Trapezium

17. The scale on an architectural drawing is 1:200. A wall constructed using the drawing is 4.5 m long. What is the length of the wall on the drawing?

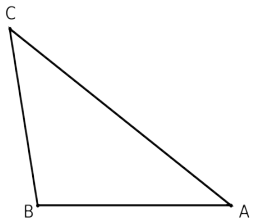
A. 0.225 cm
B. 2.25 cm
C. 22.5 cm
D. 225 cm

18. Kamau drew a straight line L■. The equation of line L■ is 3y = x – 6. A line L■ is perpendicular to L■. What is the gradient of L■?

A. 1/3 B. –1/3

C. 3 D. –3

19. Use a protractor to determine the size of angle ABC in the following triangle.



A. 70° B. 85°

C. 100° D. 115°

20. The letters of the word MATHEMATICS were written on separate cards and placed in a bucket. A card is picked at random. What is the probability that the card picked has the letter A?

A. 1/11 B. 2/11

C. 3/11 D. 4/11

SECTION B (80 marks)

Answer ALL the questions in this section in the spaces provided.

21. A Grade 7 learner participated in an 8 000 m race. She ran 5 432 m and walked the remaining distance.

(3 marks)

(a) Work out the distance that the learner walked.

(b) Write the distance that the learner ran (5 432 m) in words.

(c) Write the distance that the learner ran, rounded off to the nearest hundred.

22. A metallic container is in the shape of a cube of edge 3.6 m.

(4 marks)

(a) Determine the volume of the container.

(b) Smaller cubes of side 60 cm were packed in the container. Determine the number of smaller cubes that were packed.

23. A wedding ceremony was attended by men, women and children. The ratio of men to women to children was 4:6:5. There were 75 children at the ceremony. Determine:

(4 marks)

(a) the number of men who attended the ceremony;

(b) how many more women than men attended the ceremony.

24. A factory employs 6 men working 5 hours per day to pack sugar into packets. The men work for 8 days. Determine how many days 4 men working 6 hours per day would take to pack the same amount of sugar.

(4 marks)

25. The fraction of students who passed a Mathematics test was expressed in decimal form as 0.35. Express the decimal in fraction form, in its simplest form.

(2 marks)

26. Amina bought 3 shirts and 2 trousers of a certain type and paid Ksh 3 600. Brian bought 5 shirts and 1 trouser of the same type from the same shop and paid Ksh 5 300. Determine the cost of one shirt and one trouser.

(4 marks)

27. Families C and D bought apples, oranges and pears over two weeks as shown in the following tables.

(2 marks)

Week 1

Family	Apples	Oranges
C	5	8
D	10	6

Week 2

Family	Apples	Oranges	Pears
3 C	7	9	2
4 D	8	12	6

(a) Form matrices to represent the fruits bought by the two families in Week 1 and Week 2.

(b) Determine the total number of each type of fruit bought by each family over the two weeks (write your answer as a single matrix).

28. A line passes through the point (2, –1) with a gradient of 3/2. Determine:

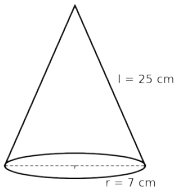
(4 marks)

(a) the equation of the line;

(b) the coordinates of the x-intercept of the line.

29. A Grade 9 learner moulded a solid in the shape of a cone as shown below. The slant height of the cone was 25 cm and the base radius was 7 cm. Calculate the total surface area of the solid, correct to 2 decimal places. (Use $\pi = 22/7$)

(5 marks)

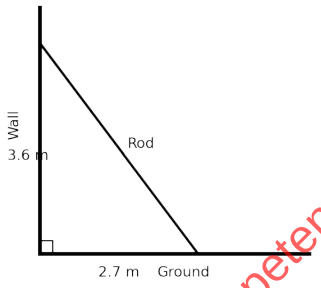


30. A cylindrical tin of radius 2.5 cm contains some water. A spherical ball bearing of radius 2 cm is fully immersed in the water in the tin. Determine the rise in the water level in the tin, correct to 1 decimal place.

(4 marks)

31. Juma placed a metal rod against a wall as shown in the diagram. The foot of the rod was 2.7 m from the wall and the top of the rod was 3.6 m above the ground.

(4 marks)



(a) Calculate the length of the rod.

(b) If the rod has a volume of 450 cm³ and a mass of 1.8 kg, calculate the density of the rod in g/cm³.

32. Town X lies on longitude 45°E. Town Y lies on longitude 75°W. The local time at town Y is 9.00 a.m. Determine the local time at town X.

(4 marks)

33. Wafula imported a printing machine with a customs value of Ksh 1 500 000. He was charged import duty at the rate of 25%, excise duty at the rate of 15% and Value Added Tax (VAT) at the rate of 16%, each calculated on the customs value. Determine the amount of money Wafula paid as:

(5 marks)

(a) import duty;

(b) excise duty;

(c) Value Added Tax (VAT).

34. A table top is in the shape of a parallelogram PQRS such that PQ = 7 cm, PS = 5 cm and angle QPS = 60°. Using a ruler and a pair of compasses only, construct:

(6 marks)

(a) parallelogram PQRS;

(b) a perpendicular line from S to meet PQ at T. Measure ST.

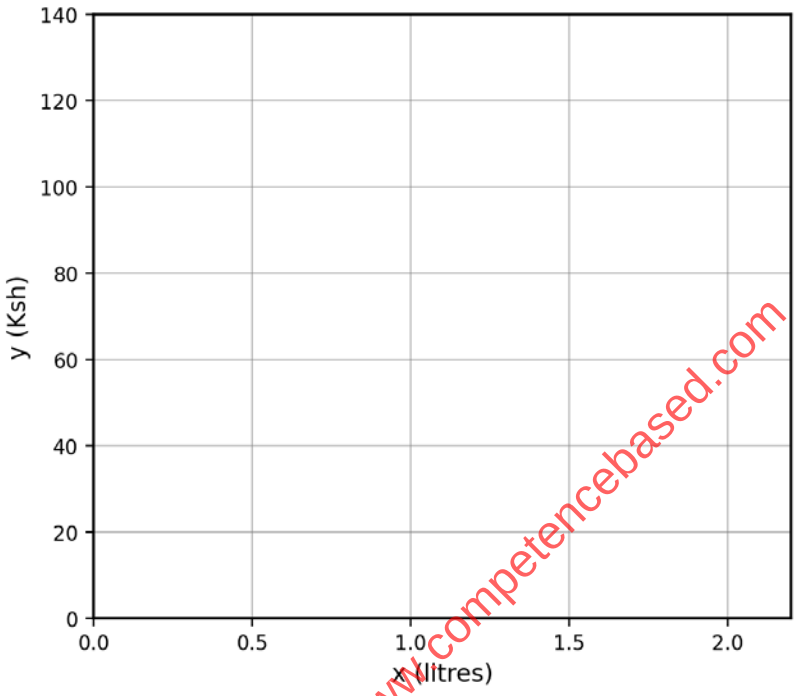
35. The cost (y) of fuel is given by the equation y = 60x, where x is the amount of fuel in litres.

(3 marks)

(a) Complete the table.

x	0	0.5	1	1.5	2
y		30		90	

(b) On the grid provided, draw the graph of y = 60x.



36. A person standing on top of a cliff observes a boat on the sea. The boat is 60 m from the foot of the cliff and the angle of depression of the boat from the person's position is 40°. Calculate the height of the cliff, correct to 2 decimal places.

(3 marks)

37. A surveyor marked three points A, B and C on a piece of land. From point A, she walked 60 m on a bearing of 060° to reach point B. From point B, she walked 80 m on a bearing of 150° to reach point C.

(6 marks)

(a) Using a scale of 1 cm to represent 10 m, draw a scale drawing to show the relative positions of points A, B and C.

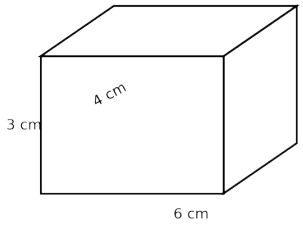
(b) Use your scale drawing to determine:

(i) the distance AC;

(ii) the bearing of C from A.

38. Kerubo modelled a cuboid of dimensions 4 cm by 6 cm by 3 cm as shown below.

(5 marks)



(a) Draw the net of the cuboid.

(b) Calculate the total surface area of the cuboid from the net.

39. The marks scored by 20 learners in a Mathematics test were recorded as follows: 12, 12, 14, 14, 14, 14, 15, 15, 15, 15, 15, 16, 16, 16, 16, 17, 17, 17, 18, 20.

(5 marks)

(a) Prepare a frequency distribution table for the data.

(b) Determine the:

(i) mean mark;

(ii) median mark.

40. A spinner has 4 equal sections numbered 1, 2, 3 and 4. Halima tossed a fair coin and spun the spinner at the same time.

(3 marks)

(a) Write down the probability space to show all the possible outcomes.

(b) Determine the probability that Halima obtained an even number on the spinner and a Tail on the coin.

THIS IS THE LAST PRINTED PAGE.