

Candidate's Name		Assessment No.	
School Name		School Code	
Candidate's Sign		Date	



003-2025
903

JUNIOR SCHOOL ASSESSMENT

GRADE 9

JESMA
003

- MATHEMATICS -

INSTRUCTIONS TO CANDIDATES

Time: 2 hours

1. Write your name and assessment number in the spaces provided above.
2. Write the name and code of your school in the spaces provided above.
3. Sign and write the date of the assessment in the spaces provided above.
4. This question paper consists of TWO sections: A and B.
5. Answer ALL the questions in section A on the separate ANSWER SHEET provided.
6. Answer ALL the questions in section B in the spaces provided in this QUESTION PAPER.
7. Show all the workings in section B in the spaces provided.
8. Non-programmable calculators may be used, except where stated otherwise.
9. Give non-exact numerical answers, correct to 3 significant figures, and one decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
10. For π , use either the calculator value or 3.142.
11. Do NOT remove any page from this question paper.
12. Answer ALL the questions in English.

Task	Question Numbers						Total score
Task 1	Question	21	22	23	24	25	Max. 16
	Score						
Task 2	Question		26	27	28		Max. 9
	Score						
Task 3	Question	29	30	31	32	33	Max. 19
	Score						
Task 4	Question	34	35	36	37	38	Max. 23
	Score						
Task 5	Question		39	40			Max. 13
	Score						

This paper consists of 8 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

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SECTION A:

1. Which of the following is an integer?

- A. 2.5 B. $\frac{1}{6}$
C. -3 D. 0.4

2. Work out;

$$(-8) + (-2)$$

- A. -10 B. 6
C. 10 D. -6

3. Evaluate;

$$324 \div 18 - (2 + 7) + 4 \times -2$$

- A. 14 B. 240
C. -1 D. 1

4. Rolo wanted to divide his 300 hectares of land into M hectares pieces for his sons. If every son was to receive 60 hectares each, what is the value of M ?

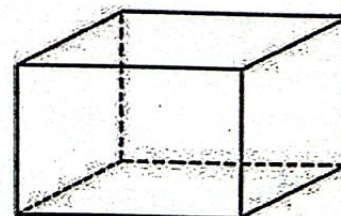
- A. 8 B. 5
C. 4 D. 6

5. Complete the sequence below by determining the next two numbers in the pattern below.

$$\frac{1}{8}, \frac{1}{27}, \frac{1}{64}, \text{---}, \text{---}$$

- A. $\frac{1}{125}, \frac{1}{216}$ B. $\frac{1}{128}, \frac{1}{218}$
C. $\frac{1}{18}, \frac{1}{180}$ D. $\frac{1}{42}, \frac{1}{180}$

6. The cube below has a volume of 512m^3 . What is the length of one side of the cube?



$$V = 512\text{cm}^3$$

- A. 16cm B. 18cm
C. 8cm D. 2cm

7. Using the factor method, find the cube root of 2197.

A. 12 B. 15
C. 14 D. 13

8. Express $10^5 \times 10^{-2}$ in standard form.

A. 10^3 B. 10^{-3}
C. 10^7 D. 10^{-7}

9. A farmer hired 5 workers who completed the task given in 8 days. How many days could it have taken to complete the task if the workers were 10?

A. 8 days B. 4 days
C. 2 days D. 10 days

10. A pump can fill a tank in 4 hours while a second pump takes 6 hours. If both pumps work together, how long will they take?

A. 3 hours B. 2.4hours
C. 5 hours D. 3.5hours

11. The sum of Ksh.6000 is divided among A, B and C in the ratio 2:3:5. How much does B get?

A. Ksh.2400 B. Ksh.3000
C. Ksh.1200 D. Ksh.1800

12. A pole is cut into three parts in the ratio 4:5:6. If the shortest piece is 8m, what is the total length of the pole?

A. 30m B. 20m
C. 36m D. 40m

13. Identify the order of matrix $\begin{bmatrix} 3 & 4 \\ 2 & 5 \end{bmatrix}$

A. 2×2 B. 1×4
C. 4×1 D. 3×3

14. Given matrices

$$A = \begin{bmatrix} 2 & 3 \\ 4 & 1 \end{bmatrix} \text{ and } B = \begin{bmatrix} 1 & -1 \\ 2 & 0 \end{bmatrix}$$

find $A + B$.

A. $\begin{bmatrix} 3 & 2 \\ 6 & 1 \end{bmatrix}$

B. $\begin{bmatrix} 3 & 2 \\ 6 & 0 \end{bmatrix}$

C. $\begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$

D. $\begin{bmatrix} 3 & 4 \\ 6 & 1 \end{bmatrix}$

15. What is the equation of a line passing through (2, 3) with a gradient of 4?

A. $y = 4x + 3$ B. $y = 4x - 5$

C. $y = 4x - 3$ D. $y = 3x + 4$

16. Find the gradient of a line passing through points (1, 2) and (3, 8).

A. 5

B. 3

C. 2

D. 4

17. Solve the inequality;

$$3x - 5 > 7$$

A. $x > 3$

B. $x > 6$

C. $x > 5$

D. $x > 4$

18. A sector of a circle has a radius of 7cm and an angle of 60° . Find its area.

A. 30.24cm^2 B. 42.97cm^2

C. 25.67cm^2 D. 22.36cm^2

19. Find the length of a side of a square whose diagonal is 10cm.

A. 15cm

B. 5cm

C. 8cm

D. 7.07cm

20. A ladder leans against a wall forming a right angle triangle with the ground. if the wall is 12m high and the ladder is 13m, how far is the base of the ladder from the wall?

A. 3m

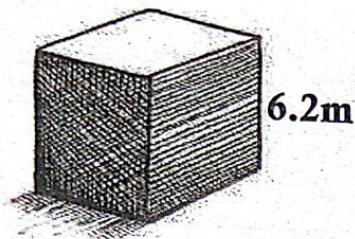
B. 5m

C. 7m

D. 9m^2

SECTION B: (80MARKS)

21. Below is a water tank constructed in shape of a cube. Determine the volume of the soil that was excavated from the tank to fit exactly. (3mks)



22. A bag contains 3 red marbles and 4 blue marbles. (4mks)

a) Find the probability of picking a red marble.

b) Find the probability of picking a blue marble.

c) Express the probability of picking a red marble as a percentage.

d) Express the probability of picking a blue marble as a decimal.

23. Solve the following simultaneous equation by substitution method. (4mks)

$$2x - y = 6$$

$$x - y = 1$$

24. Solve; (2mks)

$$-3 < 2x - 5$$

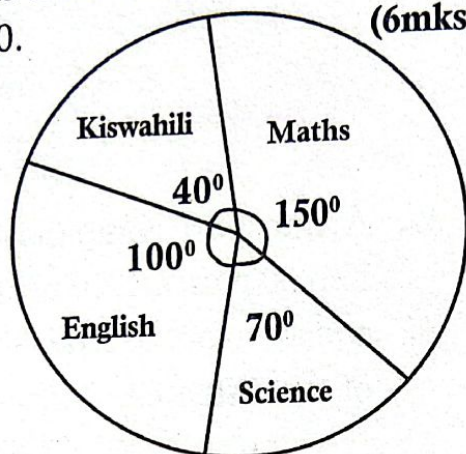
25. A transport company charges fare Ksh.50 plus Ksh.20 per km. Write an equation for the total fare T in terms of the distance. (3mks)

26. A family of three divides an inheritance of Ksh.900000 in the ratio 5:3:2. Determine how much each person receives. (3mks)

27. A worker completes a job in 12 hours while another takes 8 hours. How long will it take them to finish the job altogether? (3mks)

28. Find the gradient of a line passing through (4,5) and (8, 15) (3mks)

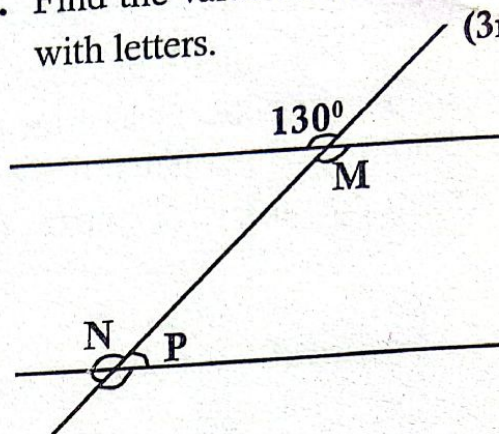
29. The pie chart below shows the number of books sold by a book seller. The total number of books sold was 720. (6mks)



- How many English books were sold?
- How many more Science books than Kiswahili books were sold?
- What is the total number of Maths books sold?

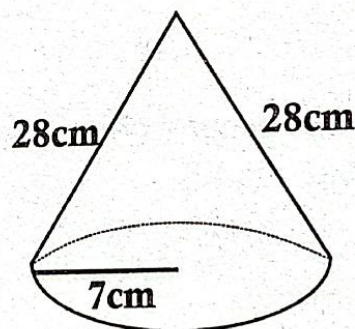
30. Cecilia received Ksh.30000 as commission after selling a plot for sh.600,000. What percentage commission was she given? (3mks)

31. Find the value of the angles marked with letters. (3mks)



M _____
N _____
P _____

32. Calculate the surface area of the cone drawn below. (4mks)



33. Sabina borrowed Ksh.800000 from a bank at a compound interest rate of 8% per annum for three years. Find the compound interest earned on the loan. (3mks)

34. Construct a trapezium ABCD with AB parallel to DC. AB = 10cm, BC = 5cm, CD = 4cm and $\angle ABC = 47^\circ$. Measure AD. (3mks)

35. The following marks were obtained by 12 learners in an assessment test.

(3mks)

12, 14, 13, 11, 12, 12, 13, 14, 11, 9, 12, 13

a) Find the median mark.

b) Find the modal mark

d) Calculate the mean score.

36. A conical tent has a base radius of 3.5 meters and a slant height of 6 meters.

(a) Calculate the curved surface area of the tent. (2mks)

b) If the tent is made of water proof material costing Ksh.120 per square meter, find the total cost of the material used. (1mk)

c) If the circular base is also covered, what is the total surface area of the tent? (2mks)

37. A rectangular garden measures 18 meters by 12 meters. It is drawn on a scale of 1 cm to 3 meters.

a) What are the dimensions of the garden in the scale drawing? (2mks)

b) If a fence is built around the garden, what is its actual perimeter? (2mks)

c) Find the actual area of the garden in square meters. (2mks)

38. Four business partners, A, B, C, and D, invest in a business in the ratio 3:4:5:6. The business makes a total profit of KES 7,200,000.

a) How much profit does each partner receive? (2mks)

(b) If partner A reinvests his share at an annual interest rate of 8%, how much will it be after 2 years? (2mks)

c) If the profit next year is expected to increase by 25%, what will be the new total profit? (2mks)

39. A bag contains 5 red balls, 7 blue balls, and 3 green balls. A ball is drawn randomly.

a) What is the probability of drawing a red ball? (1mk)

b) If a blue ball is drawn and not replaced, what is the probability of drawing another blue ball? (2mks)

c) What is the probability of drawing a red or green ball? (2mks)

40. A bar graph shows the production of maize (400 tonnes), wheat (320 tonnes), rice (200 tonnes), and barley (180 tonnes) on a farm.

a) Draw the bar graph to represent this information. (3mks)

a) Which crop had the highest production? (1mk)

b) If maize production increased by 15%, what would be the new production? (2mks)

c) Find the total production of all crops before and after the increase in maize production. (2mks)