

EMMA CONSULTANTS

TEACHERS' INTERVIEW

MATHEMATICS - 2023

Time Allowed: **2 hours**

TEL No.

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Teacher's Name:

Teacher's Signature:

Interview No.

Teachers comment:.....

Read the following instructions carefully:

1. Do not write your **school** or **district** name anywhere on this paper.
2. This paper has two sections **A** and **B**. Section **A** has **20** questions and section **B** has **12** questions. This paper has **12** pages printed altogether.
3. Answer **all** questions. **All** the working to both sections **A** and **B** must be written in the spaces provided.
4. All working **must** be done using a **blue** or **black** ball point pen or ink. Any work written in pencil other than graphs and diagrams will **NOT** be marked.
5. **No calculators** are allowed in the examination room.
6. Unnecessary **changes** in your work and handwriting that cannot be easily read may lead to **loss of marks**.
6. Do not fill anything in the table indicated:
"For examiner's use only" and the boxes inside the question paper.

FOR EXAMINER'S USE ONLY

Qn. No	MARK	EXR'S NO.
1 – 5		
6 – 10		
11 – 15		
16 – 20		
21 – 22		
23 – 24		
25 – 26		
27 – 28		
29 – 30		
31 – 32		
TOTAL		

SECTION A: 40 MARKS

Answer **all** questions in this Section

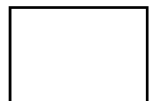
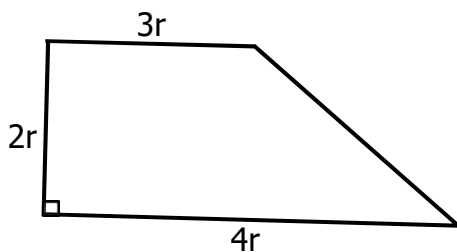
Questions **1** to **20** carry two marks each

1. Simplify: $2^0 + 1$

2. Sarah withdrew 100 ten thousand shilling notes numbered consecutively up to AP534300. Find the registration number of the first note.

3. Find the least number which when divided by 5 leaves a remainder of 4 and when divided by 6 leaves a remainder of 2.

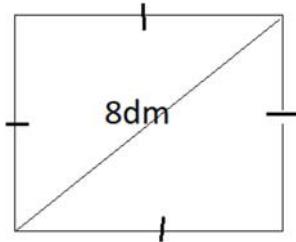
4. The figure below is a trapezium. If its area is 448cm^2 , find the value of r .



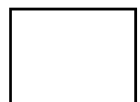
5. Solve the inequality: $1 - 3k \leq 13$ and find the solution set for k



6. The figure below is a square of diagonal 8dm. Find its area.

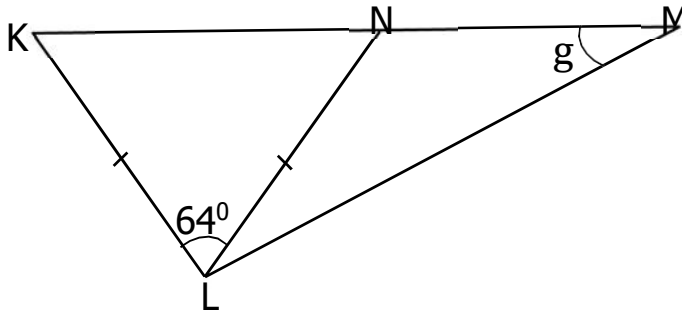


6. The mass of a bucket full of sand is 16.75kg and the mass of the bucket when empty is 1.75kg. Calculate the mass of the bucket when $\frac{1}{4}$ full of sand.
7. A project can be completed by 150 workers in 40 days. The project manager brought 30 more workers after 16 days. In how many days will the remaining work be finished if they work at the same rate?
8. Girls stood in a straight line such that Sandra was the eighth from in front and twelfth from behind. How many girls were in the line?



9. Find the number which has been expanded to get:
 $(1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0)$

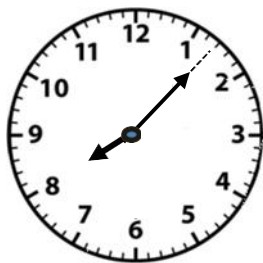
10. In the diagram below, angle $KLM = 110^\circ$, angle $KLN = 64^\circ$, MNK is a straight line and triangle KLN is isosceles. Study it and use it to answer the questions that follow.



Twice the size of angle **g** in degrees.

11. An organization has 1030 books to donate to 8 schools. What is the least number of books that must be added if each school is to get an equal number of books?

12. Peter switched off lights in his room one evening 35 minutes before the time shown on the clockface below.



At what time in the 24 hour clock did he switch off the lights?

13. A car cleaner washed vehicles in 4 days. He kept on washing 4 more vehicles than the previous day. If he washed 100 vehicles altogether, find the number of vehicles he washed on the first day.

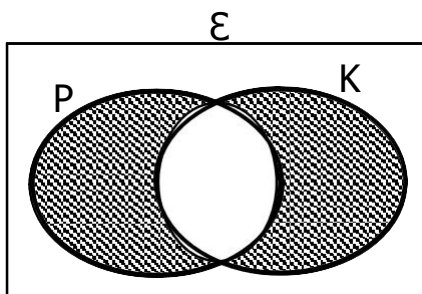
14. Use the exchange rates below to answer the question that follows.

Currency	Buying in Ugsh.	Selling in Ugsh.
1 Rwandese Franc (RF)	5.0	5.5
1 Euro (€)	4,000	4,050

Opolot has 220 Euros. How much does he have in Rwandese Francs?



15. Describe the shaded region in the venn diagram below.



16. Work out 5×-2 on the numberline.

17. The sum of the digits in the table below is the same diagonally, vertically and horizontally.

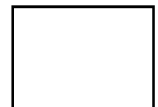
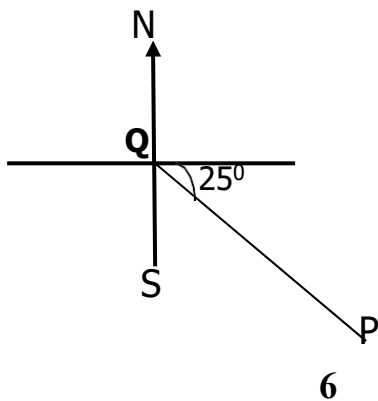
8	3	c
1	b	9
a	7	2

Given that the value of **c** is 4, find the value of **a**⁰.

18. For every 2 boys, there are 5 girls in a class of 105 pupils. How many more girls are there than boys?

19. Solve for r: $3r^2 - 2 = r^2$

20. In the figure below, find the direction of Q from P.

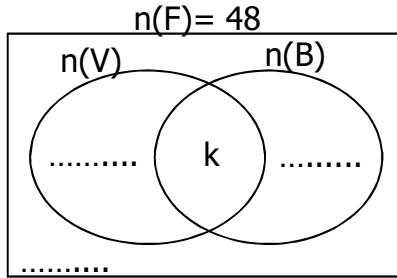


SECTION B: 60 MARKS

Answer **all** the questions in this Section

Marks for each question are indicated in brackets

21. In a club of 48 players, all of them play football (F). 10 players play football only, 25 play both football and volleyball (V), 20 play both football and basket ball (B) while k players play all the three games. (03 marks)
- a) Complete the venn diagram below.

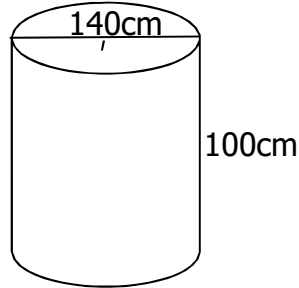


- b) Find the number of players who play all the three games. (02 marks)

- c) How many players play only two games? (01 mark)

22. A parent bought 12 pens and pencils for his daughter. Each pencil was bought at sh 300 while each pen was bought at sh 500. If the parent spent sh 4,600 altogether, how many items of each type did the parent buy? (04 marks)

23. The diagram below shows a folded piece of paper.



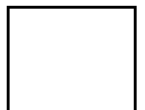
Mr. Akpos, a Mathematics teacher cut it open and formed 4 rectangular sheets of paper of the same lengths and widths.

What was the area of each rectangular piece of paper cut out? (Use $\pi = \frac{22}{7}$)
(04 marks)

24. On Idd day, Hajji bought the items listed below from a shop.

- 0.2 kg of salt at sh 1,500 each kg
- 7 tins of curry powder for sh 1,800 per pair of tins
- 80 g of onions at sh 3,000 per Hectogram
- A 400 g packet of macron for sh 1,000

If he was given a discount of 2% and he remained with sh 700 after paying for all the items, find how much money he had at first.
(05 marks)



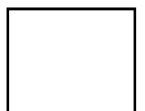
25. Complete the table below using the equation of the line $y = 2x - 3$ (05 marks)

x	-1	5
y	3	-7	0

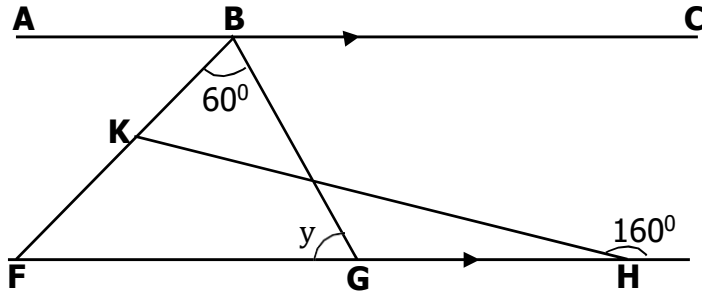
26. In a Mathematics contest organized by a certain sub-county in Serere district, 480 candidates participated. 15% of these were girls and the rest were boys. 25% of the girls failed the contest and $12\frac{1}{2}\%$ of the boys passed the contest.

a) Find the total number of candidates who failed the contest. (05 marks)

b) Determine the probability of selecting at random a pupil who passed the contest. (01 mark)



27. In the diagram below, ABC and FGH are parallel lines. Angle FBG = 60° , angle FKH is twice angle FBG.



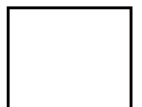
a) Find the size of angle y (03 marks)

b) Work out the angle which is a half of its complement (02 marks)

28. Books were distributed to four classes P.4, P.5, P.6 and P.7 in the ratio of 1:2:3:9 respectively.

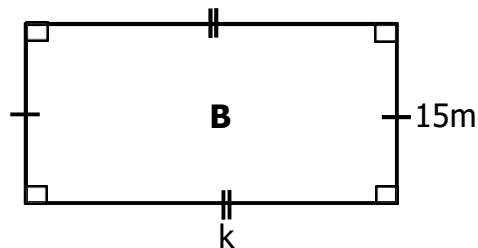
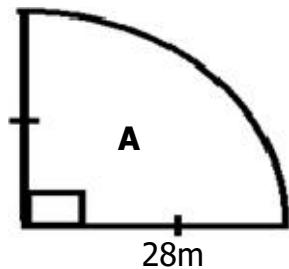
a) Represent the above information on a circle graph of radius 2.8cm. (04 marks)

b) If P.7 class got 102 more books than P.6, how many books did the four classes share altogether? (02 marks)



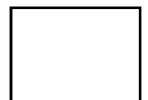
29. A motorist left Kampala at 8:30a.m. driving at an average speed of 60km/h to Jinja where she arrived at 10:30a.m. She left Jinja at 11:00a.m. and continued to Iganga at an average speed of 40km/h. If she reached Iganga at 12:30p.m., calculate her average speed for the whole journey. (05 marks)

30. The shapes below have the same perimeter.



- a) Find the value of **k**. (Use $\pi = \frac{22}{7}$) (03 marks)

- b) Work out the area of figure B. (01 mark)



31. The sum of three consecutive multiples of 6 is 117. Find the least multiple. (02 marks)
- b) The product of two numbers is 96. If the numbers are in the ratio of 2:3 respectively. Find the sum of the numbers. (03 marks)
32. During an interview, 5 marks were awarded for every correct answer given and two marks were deducted for every wrong answer given. The interview comprised twenty questions.
- a) If Alice passed only 16 questions, how many marks did she get? (02 marks)
- b) If Moses scored 79 marks, how many questions did he answer correctly? (03 marks)

(01 mark)



END