KAMPALA CITY EXAMINATIONS BOARD

" The city of success "

2024

MATHEMATICS
UNIVERSAL SET ONE

Time allowed: 2 hours 30 minutes

EMIS No.						Personal No.		

CITY EXAMS

Candidate's Name: .....

Candidate's Signature: .....

District ID No.

Read the following instructions carefully

1. Do not forget to write your **school** or **district name** on the paper.
2. This paper has two sections: **A** and **B**. Section **A** has **20** questions and section **B** has **12** questions. The paper has **16** printed pages altogether.
3. Answer **all** questions. **All** working for both sections **A** and **B** must be shown in the spaces provided.
4. **All** answers **must** be written using a **blue** or **black** ball point pen or ink. Any work written in pencil other than graphs or **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 read easily may lead to **loss of marks**
7. Do not fill anything in the table indicated: **"FOR EXAMINERS' USE ONLY"** and boxes inside the question paper.

FOR EXAMINERS'USE ONLY		
Qn. No.	**MARKS**	**EXR'SNO.**
1 – 10		
11 – 20		
21 – 30		
31 – 40		
41 – 43		
44 – 46		
47 – 49		
50 – 52		
53 – 55		
TOTAL		

SECTION: A
ANSWER ALL QUESTIONS IN THIS SECTION

1. Work out; 89 – 63.

2. Write 50,500 in words.

3. Simplify; $^{-}3 - ^{-}4$.

4. Solve $\frac{2}{7}$ m= 4.

5. Given that Set A = $\{\ \}, \{a\}, \{b\}, \{c\}, \{a,b\}, \{b, c\}, \{a, b, c\}$.
   How many proper subsets has Set A?

6. Find the G.C.F of 18 and 24.

7. Write 0.08 as fraction in its simplest form.

8. Express 0.0045 in standard form.

9. Given that K=2, and P= $^{-}3$, find the value of 3k+2p.

10. Find the square root of $3\frac{1}{16}$.

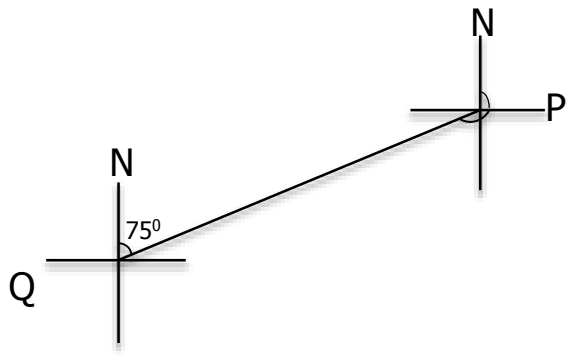
11. Without dividing, show which of the numbers 108 and 400 is divisible by 3.

12. Workout the value of 3 in 123_{five}.

13. The circumference of a circle is 88cm, find the area of the circle. (Use $\pi \frac{22}{7}$).

14. A bus uses 6litres of petrol to travel 72km. how many litres of petrol are used to travel 180km?

15. Find the bearing of point Q from P in the diagram below.



16. The table below shows the goals scored by some teams in a netball competition. Use it to answer the questions that follow.

Goals	25	20	15	12	30	45	19
Teams	2	1	3	4	3	5	6

a. How many **teams** scored less than 20 goals?

17. A 3600 seconds lesson started at 7:25am. At what time did it end?

18. The mean of $2x, 0, x$ and 3 is 6. Find the value of x.

19. In a class, the ratio of boys to girls is 3:4 respectively. If there are 12girls in the class, find the probability that a child picked at random from the class is a girl.

20. Change $6m^2$ to cm^2.

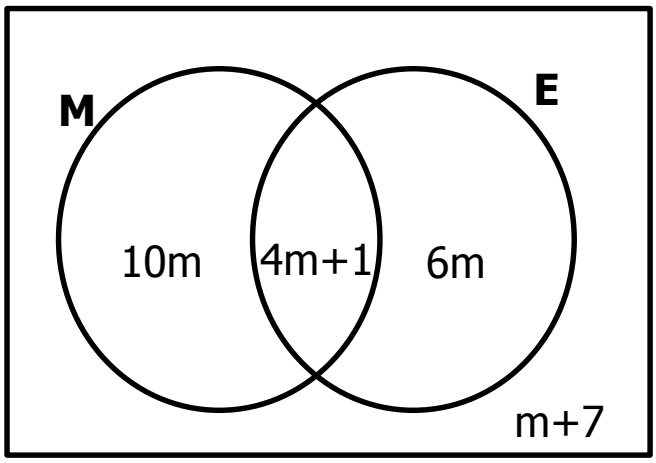
SECTION (B) 60 MARKS

21. Using a ruler, a pencil and a pair of compasses only, construct a triangle ABC where AB= 6.4cm $<$ CAB = 60^0 and $<$ ABC = 75^0. **(5mks)**

22. a. Solve: 14p + 4 = 11. **(2mks)**

b. Solve the inequality: $3x + 4 > x + 8$. **(2mks)**

23. The Venn diagram below shows the number of pupils who like Mathematics (M) and English (E) and those who like other subjects.



a. Given that the number of pupils who like both Mathematics and English is equal to those who like other subjects, find the value of **m**. **(2marks)**

b. How many **pupils** like only one subject? **(1 mark)**

c. Calculate the **tota**l number of pupils in the class. **(2 marks)**

24. Given that a = 4, b = $^{-}$3, c = $^{-}$6, and d = 5.

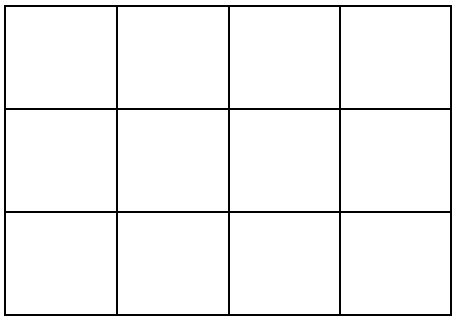
a. Evaluate;

i. a + b **(1marks)**

ii. ab **(2marks)**

iii. $\frac{ac}{b}$ **(2marks)**

25. Atiku placed square tiles of 1600cm^2 each in a rectangular floor as shown below.



a. Calculate the perimeter of the rectangular floor. **(3marks)**

b. If he placed chairs round the rectangular floor at an interval of 10cm, find the total number of chairs that were placed round the floor. **(3marks)**

26. The exchange rates in a bank are as follows,

    1US Dollar ($) = Ugshs. 3700.

    1 British pound sterling = Ugshs 4600.

    1 kenya shillings (Kshs) = Ugsh. 48.

a. Convert **Ugshs. 25900** to United state Dollars. **(2marks)**

b. If a bag costs 60 British pounds. Find the equivalent cost in Kenya shilling. **(2marks)**

27. Three boys Ismael, Isaac, and Innocent shared some money in the ratio of **3:4:5** respectively. If Ismael and Isaac got sh. **28000** more than Innocent?
    a. How much money did they share altogether? **(2marks)**

    b. How much more money did Innocent get than Ismael? **(3marks)**

28. The mean of three consecutive even numbers is 42, If the middle number is m-2, find the value of m. **(2marks)**

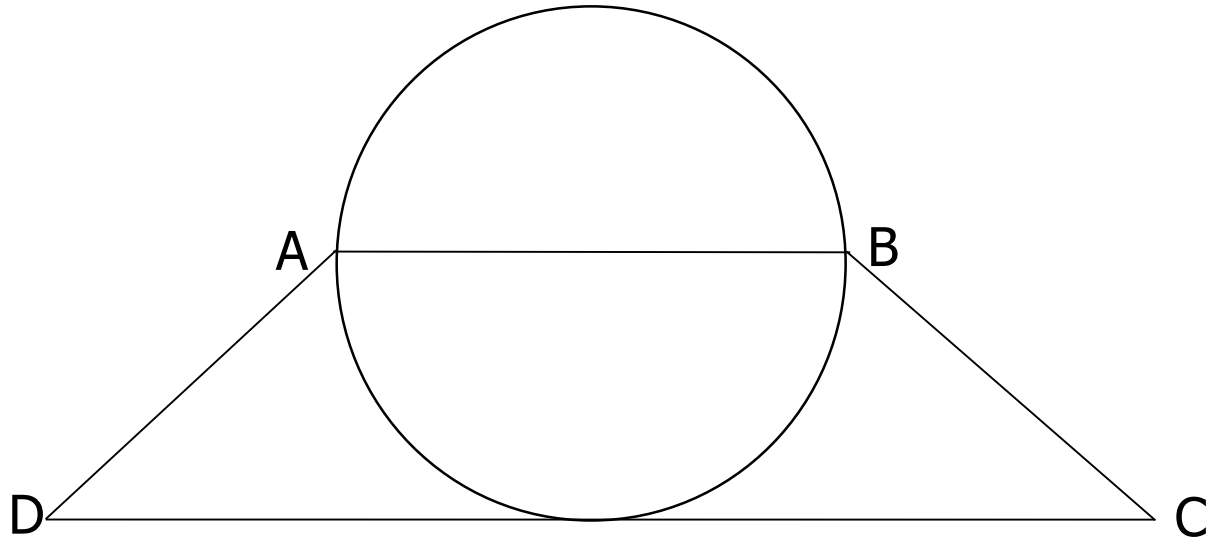
    a. Workout the numbers. **(2marks)**

b. Workout their **range** **(1mark)**

29. a. Acema borrowed some money from the bank which offered an interest rate of 25% for 0.5 years. At the end of the period, He paid a total amount of sh. 450,000. How much money did Acema borrow from the bank? **(3marks)**

b. If he extended his period to 1½ years, how much interest will he pay at the end of 1½ years? **(2marks)**

30. Study the figure below and use it to answer the questions that follow.



a. Given that the area of the circle is 154cm^2. Find the total length round the circle. **(3marks)**

b. If the area of the trapezium is 112cm^2 , workout the length DC.

(3marks)

31. The table below shows the arrival and departure time for link bus from Kampala to Fort portal. Use it to answer the questions that follow.

Town	**Arrival time**	**Departure**
Kampala		8:20am
Mubende	9:40am	9:59am
Kakumiro	10:26am	11:00am
Kibaale	11:45am	12:00noon
Fortportal	1:30pm	

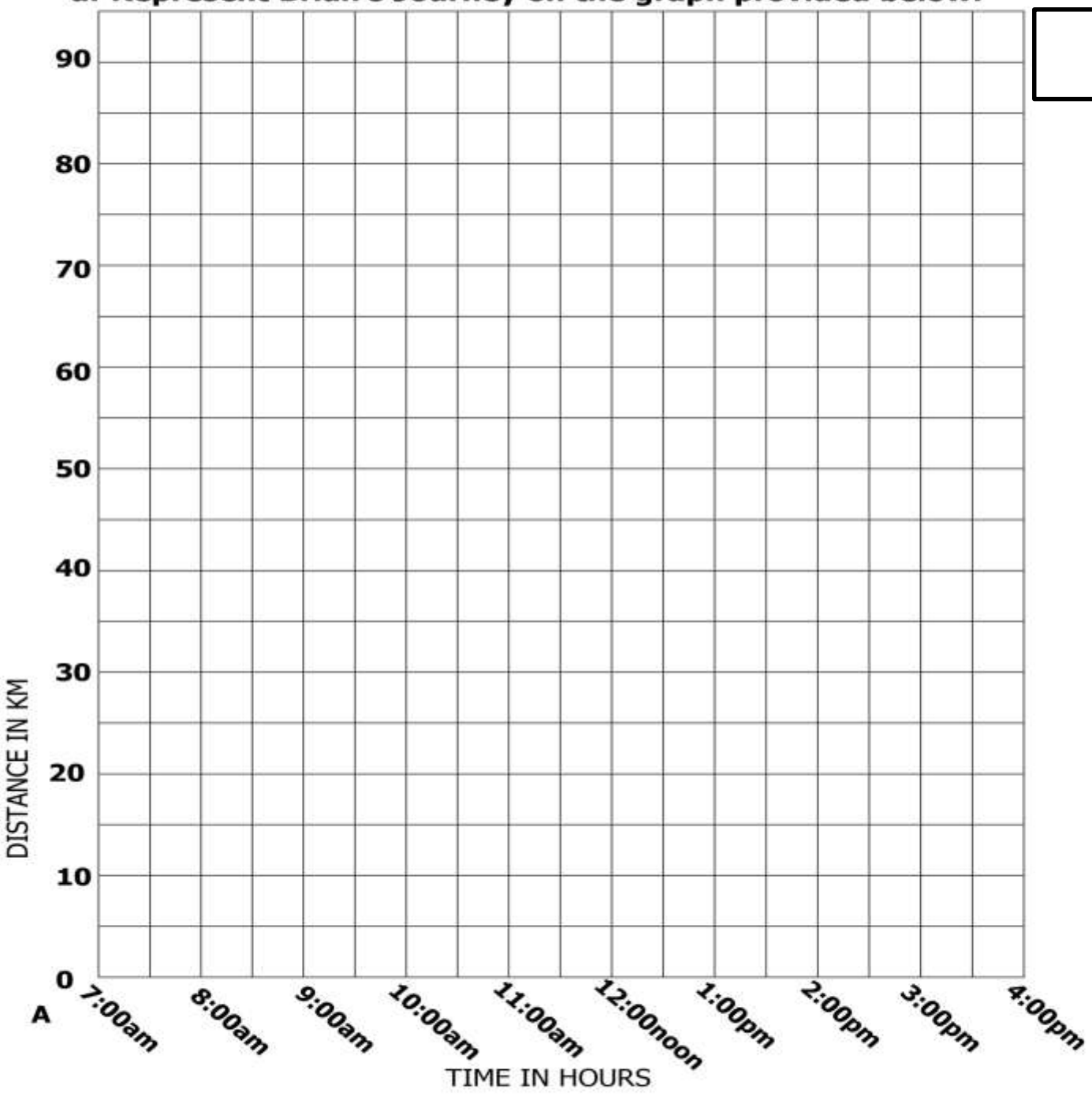
a. Express the time the bus leave Kampala in military hours. (2marks)

b. How long was it from Kampala to Fort portal? (2marks)

c. At what time does the bus leave Kabaale? (1mark)

32. Brian left Town **A** at 7:00am and drove at 35km/hr for one hour to Town **B**. he rested at **B** for half an hour. He left Town **B** and drove for 1hour to Town **C** at 45km/hr. he rested at **C** for 30minutes then drove back to Town **A** at a steady speed of 40km/hr.

a. Represent Brian's Journey on the graph provided below.



a. At what time did he reached Town c?