KAMPALA CITY EXAMINATIONS BOARD

" The city of success "

2024

MATHEMATICS

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 **14** printed pages altogether.

CITY EXAMS

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 – 5		
6 – 10		
11 –15		
16 – 20		
21 – 22		
23 – 24		
25 – 26		
27 – 28		
29 – 30		
31 - 32		
TOTAL		

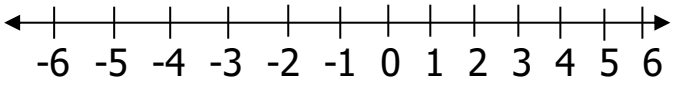
1. Subtract: 100 from 111.

2. Write in words; 16.29.

3. Given that set **B** has 15 proper subsets, how many elements has set **B**?

4. What percentage of the figure is shaded?

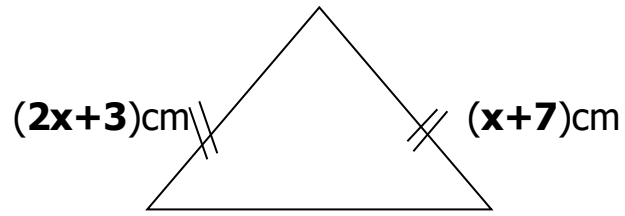
5. Workout; $^{-}6$ **-** $^{-}6$ using the number line below.



6. Workout;

weeks	**days**
4	5
+3	4
_____	
_____	

7. In the figure below, find the value of **X**.



8. Find the sum of the next two numbers in the sequence below.

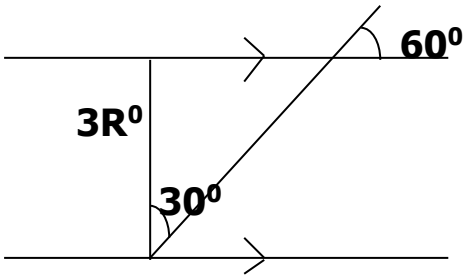
$^{-}9, ^{-}7, ^{-}5,$ ____, _____

9. The mean of (**2a+1**), 3, **a** and 4 is 6. Find the value of **a.**

10. Solve;5X+2<3X+4.

11. Express 4361 in standard form.

12. In the figure below, find the value of **R.**



13. Change $\mathbf{3\frac{1}{4}}$ as improper fraction.

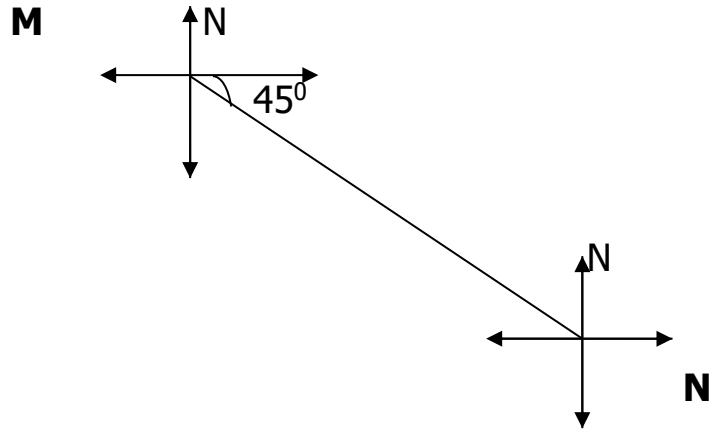
14. Write **168** in Roman numerals.

15. Find the square root of 289.

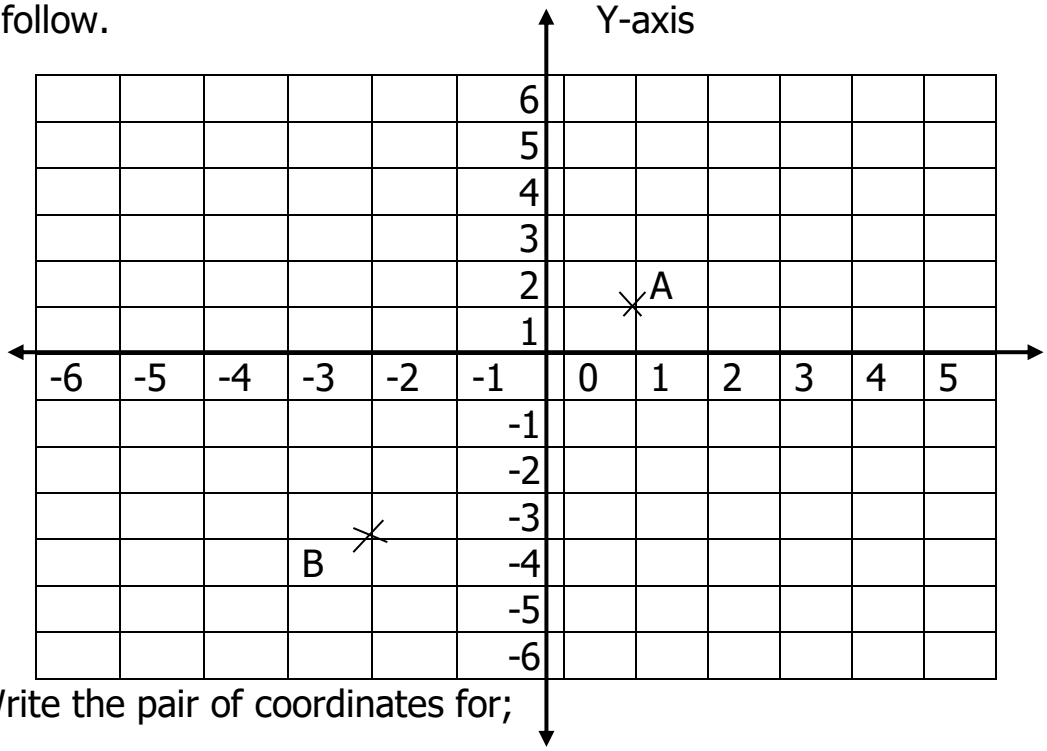
16. Convert **5kg** into grams.

17. Expand **42.35** using indices.

18. Find the bearing of town **M** from town **N** in the figure below.



19. Study the coordinate graph below and use it to answer the questions that follow.



Write the pair of coordinates for;

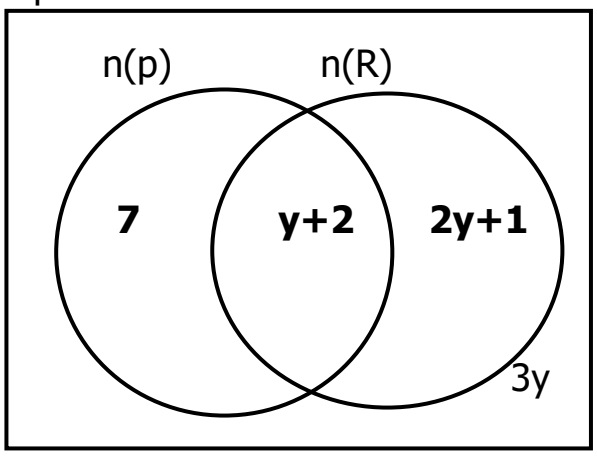
(i) A.....

(ii) B.....

20. Given that $3k2_{four}=50_{ten}$, write the value of **k** in binary base.

SECTION (B) (60MARKS)

21. The Venn diagram below shows a class of pupils who like Posho **(P)** and rice **(R)** some like both while **21** pupils dislike Posho. Use it to answer the questions that follow.

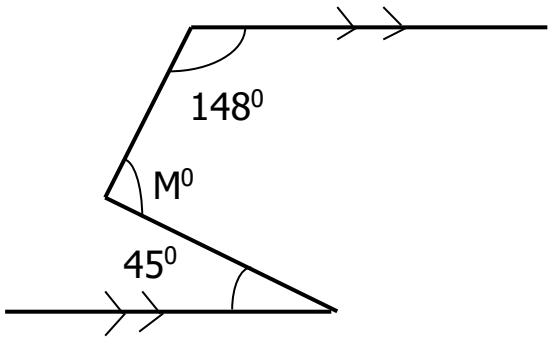


a) Find the value of **Y.** (***2marks***)

b) Workout the total number of pupils in the class. (***2marks***)

c) Find the probability of picking a pupil at random who like Posho only. (***1mark***)

22. a) Study the diagram below and find the size of angle **M**.

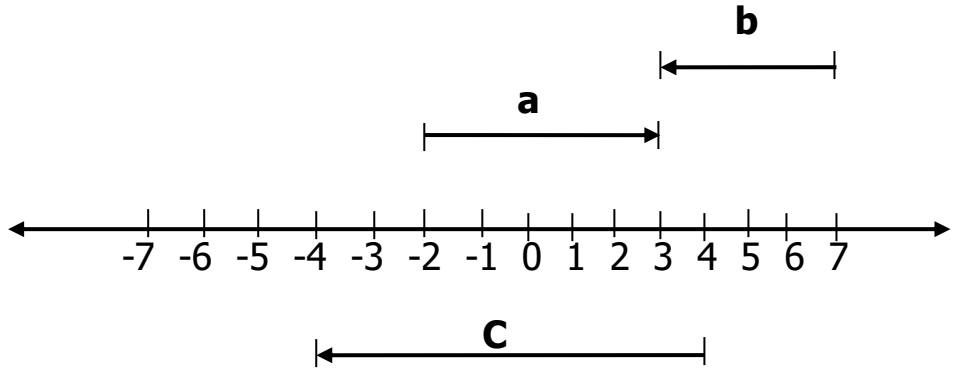


(***2marks***)

b) The sum of the interior angle of a regular Polygon is **540^0.** Find the . sides it has?

d) What is the size of each exterior angle of the Polygon? (***2marks***)

23. Study the number line below and use it to answer the questions that follow.



a) State the integers represented by

(i) a

.....

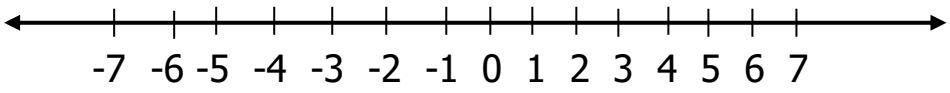
(ii) b

.....

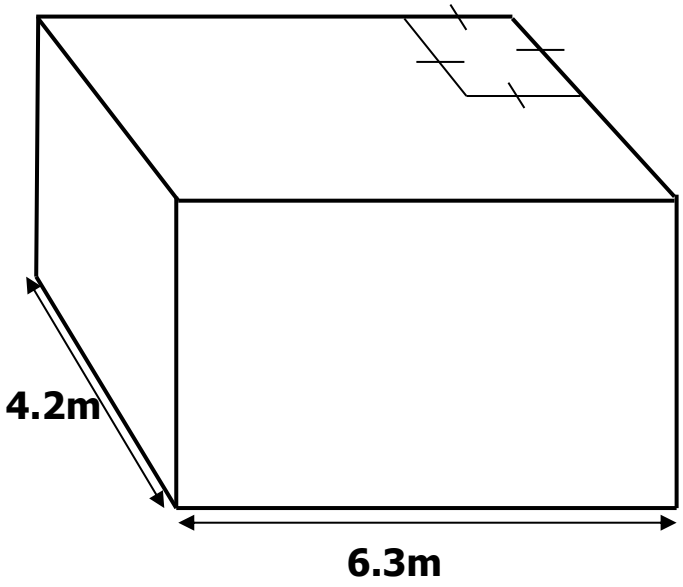
(iii) C

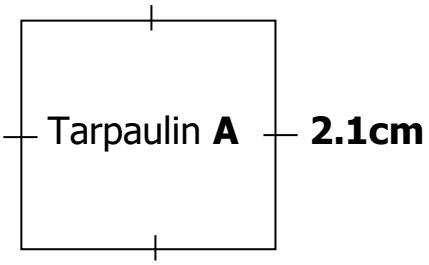
.....

b) Show the solution set for **-2<X<4** on the number line below.



24. The barn building below is **4.2**meters long and **3.5m**eters wide Tarpaulin of **A** sizes were used to cover the open roof of the barn building as shown below.





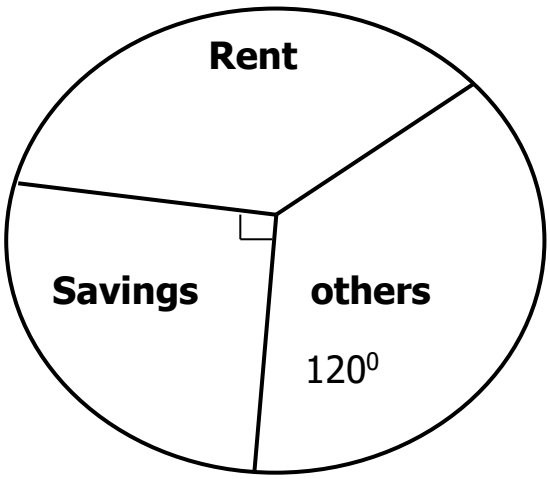
a) How many tarpaulins are needed to cover the open roof of the barn building? (***3marks***)

b) If he spent sh.6,000,000 to buy all the Tarpaulins needed to cover the open roof of the barn building, how many Tarpaulins can he buy for **sh.25000**? (***3marks***)

25. (a) Using a ruler, pencil and a pair of compasses only, construct a triangle **ABC** where **<A =60^0**, and **AB = 7cm** and B =**$^1/_8$** of 360^0 (***4marks***).

b) Draw a perpendicular from **C** to meet B at **X.** (***1mark***)

26. The pie-chart below shows Sumaya's monthly expenditure for the month of October 2024. Use it to answer the questions that follow.



a) If she earns Sh.216,000, how much does she spend on rent? (***2marks***)

b) Express his savings as percentage. (***2marks***)

c) How much more does he spend on others than on savings? (***2marks***)

27. The table below shows the arrival and departure time for Zawadi bus from Kampala to Moyo district.

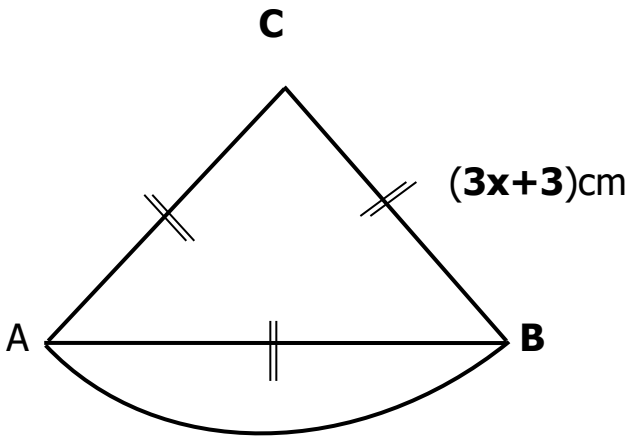
TOWNS	**Arrival time**	**Departure time**
Kampala		8:05am
Lira	10:20am	11:00am
Gulu	11:48am	12:00noon
Moyo	2:30pm	

a) How long does the bus stay at Lira? (***2marks***)

b) Express the arrival time at Moyo in 24hrs. (***2marks***)

c) If the bus travelled from Lira to Gulu at **45Km/hr,** how far is Gulu from Lira? (***2marks***)

28. Below is an **equilateral** triangle **ABC** attached to semi circle as shown below. Use it to answer the questions that follow.



a) If Paul walked twice the semi-circle and covers a distance of 108cm, find the value of **X.** (***4marks***)

29. Given that **Y = $^{-}$2x+3**. Complete the table below.

Y	9	___	___	$^{-}$11	15
X	__	-3	0.5	___	___

30. Baguma weighs (**2a+5**), Isaac weighs (**3a-10**) and Mandre weighs 1(**a+3**) Years, if their total weight is 34years.

a) Find the value of a. (***2marks***)

b) How old is the first born? (***2marks***)

c) Given that **a**=$^1/_3$, **b**=$^1/_4$ and **c**=$^3/_5$.

Evaluate; (b÷a)c (***2marks***)

30. Ateenyi spends $\frac{1}{4}$ of his salary on rent, $\frac{1}{3}$ of the remainder on fees, $\frac{1}{5}$ on transport, and saved the rest.

a) What fraction does he save? (***3marks***)

b) If she allocates Sh.45,000 more on savings than fees, find her total income (***2marks***)

31. The Infantry Deserter ran from Town **A** to Town **B** a distance of 120km in only **K** hours form Town **B**, he took on another journey of 240km and used one more hour than in the previous journey. Find the time he used in the first journey if the average speed for the whole journey was **72km/hr.** (***4marks***)

32. a) Given that $22_{\mathbf{k}} = 15_{\mathbf{nine}}$, find the value of **K**. (***3marks***)

b) . Group 43ten in an **Octal** base. (***2marks***)