NAME…….....ADM.NO:……. CLASS:……

SCHOOL:……..CANDIDATE'S SIGN……DATE:……..

MATHEMATICS FORM ONE TERM III 2022

TIME: 2 1/2 HOURS

INSRUCTIONS TO CANDIDATES

1. Write your name, admission number and class in the spaces provided
2. The paper consists of two sections; section I and II.
3. **ANSWER ALL THE QUESTIONS** in section 1 and strictly five questions from section II
4. All answers and working must be written on the question paper in the spaces provided below each question.
5. Show all the steps in your calculations, giving your answers at each stage in the spaces provided below each question.
6. Marks may be given for correct working even if the answer is wrong
7. Non- programmable silent electronic calculator and KNEC Mathematical tables may be used, except where stated otherwise.

1. Evaluate without using a calculator (3mks)

$$\frac{-8+(-3)\text{ X }(-12)-(-4)}{-4+(-6)\div 2\text{ X }4}$$

2. A student spends $\frac{2}{5}$ of her pocket money on personal effects, $\frac{1}{4}$ of the remainder on stationery and $\frac{1}{3}$ of what remains on snacks during school outings. If she is left with sh.240, find the amount she spends on snacks (3mks)

3. Express 0.407 as a simplified fraction (3mks)

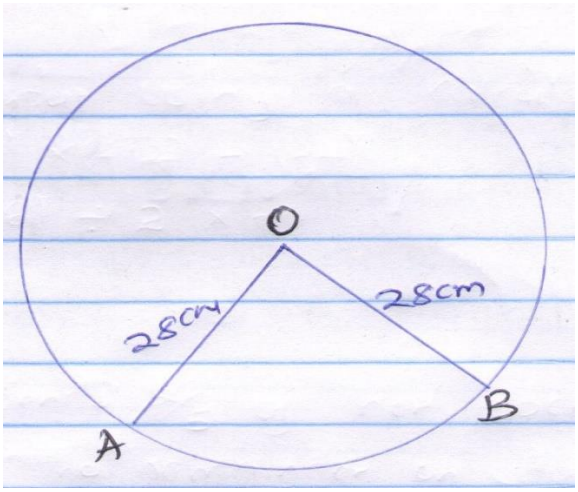
4. Forty five men can construct a road 210m in 60 days. How many more men would be required to construct a road 280m in 50 days, assuming that they are working at the same rate (3mks)

5. Solve the equation $\frac{2x-1}{4} - \frac{x-1}{3} = \frac{1}{8}$ (3mks)

6. The sum of interior angles of a regular polygon is 1260^{0}, find the exterior angle of the polygon

(3mks)

7. In the figure below, arc AB of a circle subtends an angle of 90^{0} at the centre OA= OB = 28cm, find the length of the major arc.(Take $\pi = {}^{22}/_{7}$) (3mks)



8. The marked price of a shirt is sh.800.A customer buys the shirt after being given a discount of 13%.The seller then realizes that he made a profit of 20% on this sale. Find how much the seller had bought the shirt (3mks)

9. The cost of 2 plates and 1 cup is sh220.Abdi bought 3 plates and 2 cups and paid sh.130 more. How much was the cost of 1 plate and 1 cup (3mks)

10. A solid metal cuboid 1.5m long, 0.4m wide and 0.25m high is made of material of density 0.15kg/m^3.Calculate the mass in grams (3mks)

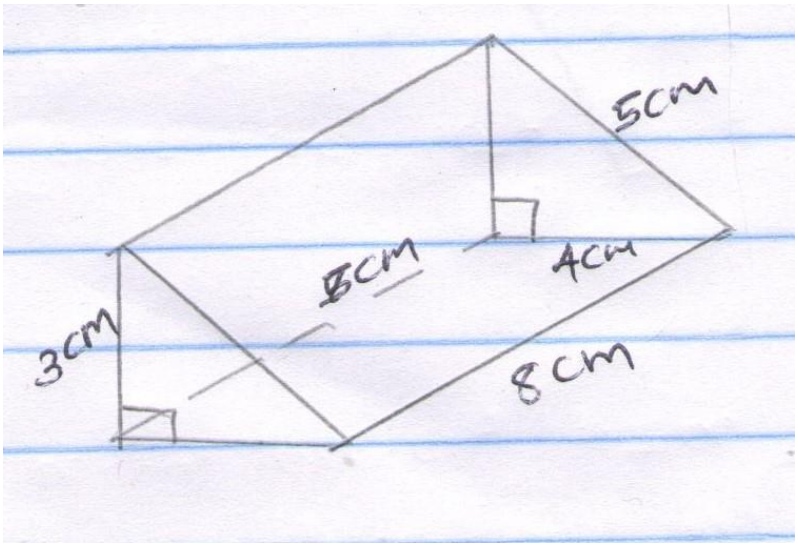
11. A Kenyan bank buys and sells foreign currency as shown below (4mks)

	Buying (Ksh)	**Selling (Ksh)**
1 Euro	84.15	84.26
1 Us dollar	80.12	80.43

Tourist travelling from Britain arrived in Kenya with 5000 Euros. He converted all the Euro to Kenyan Shilling at the bank. While in Kenya he spends a total of Ksh289, 850 and then converts the remaining Kenyan shillings to Us Dollars at the bank. Calculate to the nearest dollar the amount he received (4mks)

12. A scale on a map is 1:2000.A circular piece of land for growing maize has a radius of 7cm on the map. Calculate the actual area in hectares of this piece of land.
(Take $= {}^{22}/_{7}$) (3mks)

13. Find the total surface area of the prism below (3mks)



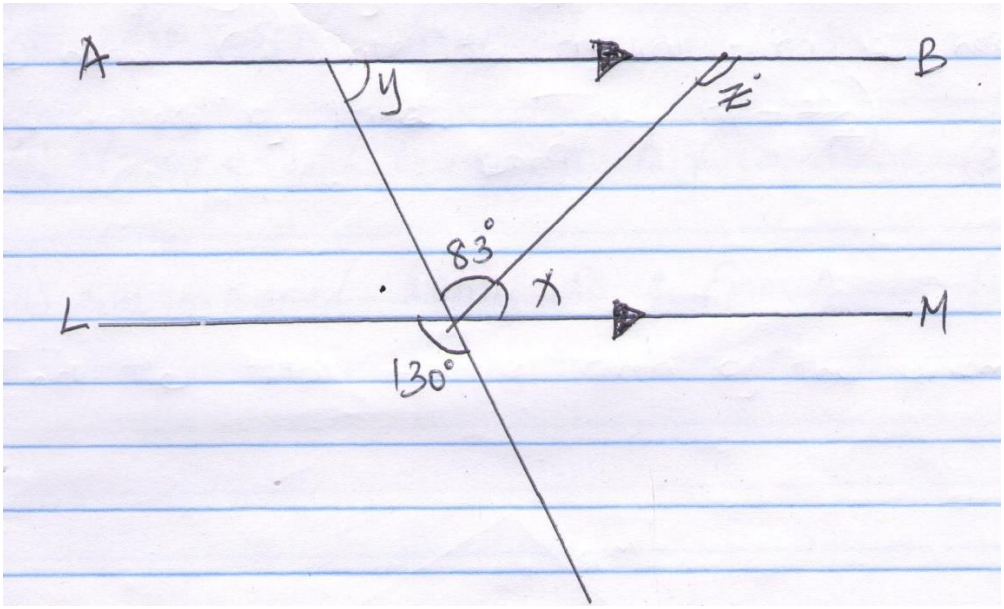
14. Use prime factorization to evaluate (4mks)

$$\frac{\sqrt{64 \times 81}}{\sqrt[3]{27 \times 8}}$$

15. A watch loses a half minute every hour to read the correct time at 0545 hours on Monday. Determine the time in the 12 hour system, the watch will show on the following Friday at 1945 hours

(3mks)

16. In the figure below, line AB and LM are parallel. Find the size of angle x, y and z (3mks)



17. Four points A,B,C,D are situated on a horizontal plane such that B is 200m on a bearing of 065^0 from A. C is 300m on a bearing of 120^0 from B and D is 150 m due west of C.

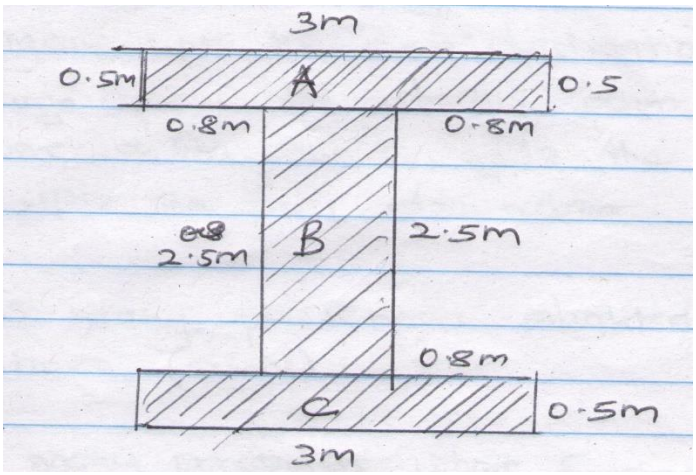
(a) Using a scale of 1cm to represent 50m, draw a diagram to show the relative position of points A,B,C,and D. (4mks)

(b) Use the scale drawing to determine;

i. Distance and bearing of D from A (3mks)

ii. Distance and bearing of B from D (3mks)

18. The diagram below shows the cross-section of a structure used as part of building construction design. All dimensions are in metres and the structure is 6m long



(a) Calculate;

i. The cross-sectional area of the structure (3mks)

ii. The volume of the material used to fill the structure (2mks)

(b) The material used to fill the structure is a concrete made by mixing gravel, sand and cement in the ratio 6:5: 2 by mass.Given that the density of the concrete is 1.3g/cm^3, calculate the mass in tonnes of each component in the concrete (5mks)

19. A bus had 25 passengers at the beginning of a journey.Forteen passengers, alighted at the first stop while eleven boarded. Eight of those who boarded at the first stop, alighted at the second stop and 14 got in.The bus did not stop again upto the final destination.

The charges from the starting point upto the first stop were sh 60, sh 80 upto the second stop and sh 95 upto the final destination.

(a) (i) How many passengers, alighted at the first destination (2mks)

(ii) How many passengers were ferried by the bus throughout the journey (2mks)

(iii) How much money was collected during the trip (4mks)

(b) A television set dealer sold TV set for a total of sh388, 500 at sh 18,500 per set. How many Tv set were sold (2mks)

20. The table below shows a field with measurements in metres.Take AG = 250m as the base line. Use a scale of 1cm to represent 20m.

	G	
	200	F 70
E60	130	
	100	D 80
C 40	60	
	40	B 50
	A	

(a) Make a scale drawing of the field (3mks)

(b) Find the area of the field in metres (7mks)

21. Copy and complete the tables (i) and (ii) below for the equations $y = 7 – 3x$ and $y = 2x – 8$ respectively.

(i) $y = 7 – 3x$

x	-2	-1	0	1	2	3	4	5
y	13		7					-8

(ii) $y = 2x - 8$

x	-4	-2	0	2	4	6	8	10
y	-16		-8			4		

(b) On the same grid provided, draw the graph of $y = 7 – 3x$ and $y = 2x – 8$ (4mks)

(c) What is the nature of the two graphs you have drawn (1mk)

(d) Use your graphs to solve the simultaneous equations

$3x + y = 7$

$2x – y = 8$ (3mks)