KAMPALA MATHEMATICS CLUB

1. Befriend mathematics

The first trick is to be friends with the subject. We all know having a positive attitude towards whatever you are doing is a plus. This is because whenever a positive attitude is attached, you will devote much of your resources to see yourself attain the desired results. However, no one should ever cheat you that you can ever pass in this subject unless you love it otherwise you will find yourself walking in hellfire with mathematics. to pass in maths you must develop a character of liking it. It is psychologically proven that when one is interested in an idea, they are probably going to perform better in it as they create an inner driving force. It is in the same way that when you are reading a mathematics book in a good mood it will be easier for you to understand the concepts hence the study session turns from a tedious activity to a cheerful one.

2. Be an active participant

Unlike the other subjects which require you to memorize and cram concepts, mathematics requires a different approach. It is important to be an active learner when it comes to this subject. It is through being active that you will find it easy to capture the basic and vital concepts which form the foundations of passing in mathematics paper. After grasping the concepts, you are also required to keep on practicing through regular handling of related mathematical problems to make the ideas firmly stick into your mind. Allocate more study hours and put in extra effort if you would like to pass with flying colors. The hidden trick behind mathematics is the formulas. Familiarizing yourself with the formulas is the first step to doing good in maths as it gives you confidence when handling related problems since you not only know the formulas but also how to correctly apply them in exams.

3. Practice regularly

Mathematics is a complicated subject that cannot be learned through reading and listening only. To pass in this subject you need to roll your sleeves and regularly solve several problems from different topics. It is said that practice makes perfect thus the more you practice the better you become in maths. Mathematics is a dynamic subject as it keeps on generating different puzzles with different characteristics thus to pass in it you must have solved lots of problems beforehand to give an advantage of the unknown. Whenever you encounter a challenging mathematical problem, it is advisable to seek help from those who are good in the area rather than just turning to the next page for an easier question. Remember those challenging questions forms the stepping stone for handling more complex problems.

4. Apply mathematics to real-world problems

Whenever undertaking a mathematical problem, try to relate it to real-world problems which can help you change your perception and assimilate the ideas differently. For instance, in a situation of speed, you should relate it to vehicles that operate along your route while holding to the problem at hand. This will definitely help you vividly remember the concept of the problem when such problems are repeated in the future.

P.7 MATHEMATICS
Week 1st – 6th April 2020

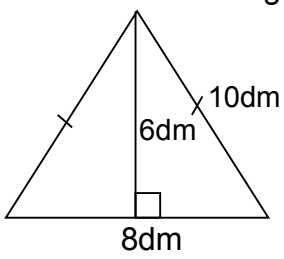
Name: ..... stream: .....

SECTION A: (40 MARKS)

1. Multiply: 22 x 4

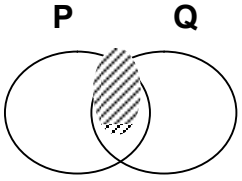
2. Write 54 in Roman numerals.

3. Find the area of the figure below.



4. What is the place value of 4 in the figure 4.37?

5. In the Venn diagram below describe the shaded part.



6. What number has been prime factorized to get $\{2_1, 2_2, 3_1, 3_2\}$?

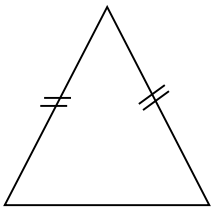
7. Work out: $\frac{1}{2} + \frac{1}{3}$

8. A fountain pen costs Shs 6000. Jaliah bought 5 fountain pens. How much money did she pay?

9. Work out: $^{-}7 + {}^{+}5$

10. Given that  represents 10 trees. How many trees are represented by  ?

11. How many lines of folding symmetry does the figure below have?



12. Muwonge's cow produced 45 litres of milk in one week. Muwonge sold all the milk in ½ litre bottles. How many ½ litre bottles of milk did he sell?

13. Write in figures: Twelve thousand four hundred two.

14. Divide: 1818 by 3.

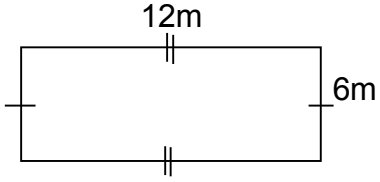
15. Change 4½ kg to grams.

16. Find the average of 70, 80, 90, 60.

17. Solve for x: $2x + 4 = 12$

18. Use a protractor to draw an angle of 75^0.

19. Find the total distance around the figure below.



20. Work out:

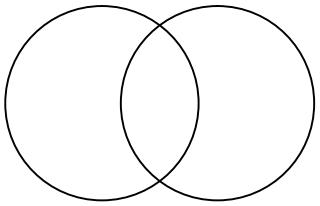
HR	MIN
8	30
- 4	40

SECTION B (60 marks)

21. Given that set X = {a, b, c, d, e, f}, Y = {a, e, i, o, u}.

(a) Show the above information on the venn diagram below. *(2 marks)*

X Y



(b) Find: (i) n(X∪Y) *(1 mark each)*

(ii) Y – X

(iii) X∩Y

22. In a farm of 120 animals, ⅔ are cows and the rest are sheep.

(a) Find the fraction of sheep on the farm. *(1 mark)*

(b) How many cows are there on the farm? *(2 marks)*

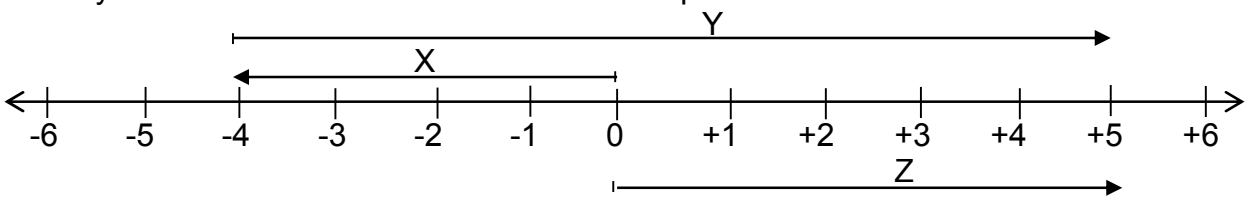
(c) How many more cows are there than sheep? *(2 marks)*

23. Mary went to a shop and bought the following items.
- 2 kg of sugar at sh. 2800 per kilogram.
- 3 bars of soap at sh. 6000.
- 1 ½ litres of paraffin at sh. 2900 per litre.
- transport sh. 3000

(a) How much money did she spend altogether? *(3 marks)*

(b) If she had sh. 20000 before shopping, what was the balance? *(2 marks)*

24. Study the number line below and answer the questions that follow.



(a) Name the integers represented by:- *(1 mark each)*

(i) Arrow X _____

(ii) Arrow Y _____

(iii) Arrow Z _____

(b) Write the mathematical statement for the above number line. *(2 marks)*

25. The table above shows marks obtained by a pupil in end of year exams. Use it to answer questions that follow.

ENGLISH	MATHS	SCIENCE	SST	COMPUTER
65	90	70	70	55

(a) Find the median mark. *(1 mark)*

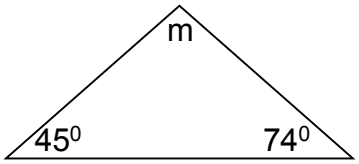
(b) Find the range. *(1 mark)*

(c) What is the modal mark? *(1 mark)*

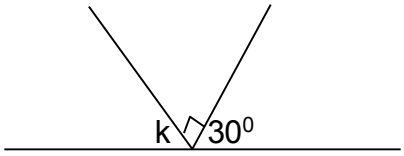
(d) Calculate the average mark. *(2 marks)*

26. Calculate the values of unknown angles. *(2 marks each)*

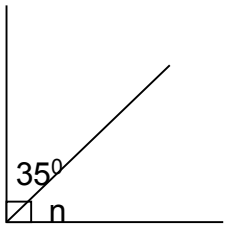
(a)



(b)



(c)



27. (a) A mathematics lesson of 40 minutes started at 9:50 a.m. When did it end? *(2 marks)*

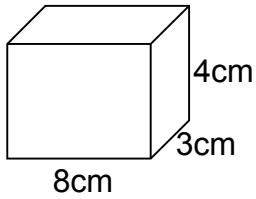
(b) A taxi was moving at a speed of 80km per hr. It moved for 3 hours. What distance did it cover? *(2 marks)*

28. (a) Arrange $\frac{1}{2}$, $\frac{3}{4}$, $\frac{5}{6}$ in descending order. *(2 marks)*

(b) What is the reciprocal of 1 ½? *(3 marks)*

29. Study the figure below and find;

(a) its volume. *(2 marks)*



(b) the number of; *(1 mark each)*

(i) edges

(ii) faces

(iii) vertices

30. Using a ruler and a pair of compasses only, construct a regular hexagon in a circle of radius 4cm. (4 marks)

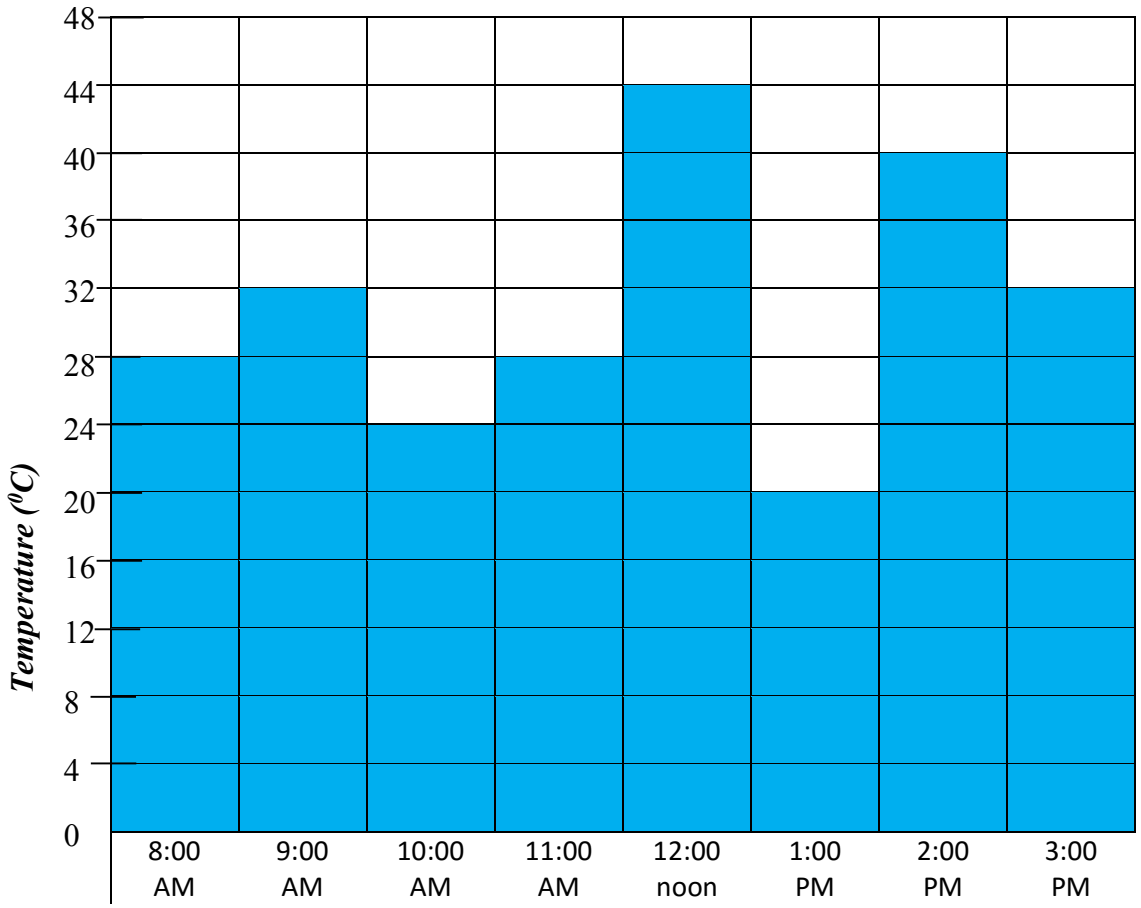
31. (a) Solve for the unknown in; *(2 marks each)*

(i) 2x – 17 = 19

(ii) $\frac{y}{3} = 7$

(b) If a = 2, b = 5 and c = 4 find the value of 3c + a – b.

32. *The graph below shows the temperature record during a day in degrees celsius. Use it to answer questions that follow.* *(1 mark each)*



(a) What was the highest temperature that was recorded?

(b) At what time was the temperature lowest?

(c) What was the temperature at 9:00 a.m.?

(d) Find the range.

(e) At what time was the temperature 24^0C?

Good Luck

PRIMARY SEVEN

MATHEMATICS

Index No. | | | | | | | | | |

Candidate's Name: _____

Candidate's Signature: _____

Read the following instructions carefully:

1. The paper has **two** sections: **A** and **B**
2. Section **A** has 20 short questions (40 marks)
3. Section **B** has 12 questions (60 marks)
4. Answer **ALL** questions. All answers to both Sections A and B must be written in the spaces provided.
5. All answers must be written using a blue or black ball point pen or ink. Diagrams should be drawn in pencil.
6. Unnecessary alteration of work may lead to loss of marks.
7. Any handwriting that cannot be easily read may lead to loss of marks.
8. Do **not** fill anything in the boxes indicated for Examiner's use only.

FOR EXAMINER'S USE ONLY

FOR EXAMINER'S USE ONLY		
Qn. No	**MARK**	**SIGN**
1 – 10		
11 – 20		
21 – 30		
31 – 32		
TOTAL		

Turn over

SECTION A: (40 MARKS)

1. Subtract:
$$\begin{array}{r} 9\ \ 9 \\ -\ 8\ \ 6 \\ \hline \\ \hline \end{array}$$

2. Write XIX in Hindu Arabic.

3. Add: $\frac{2}{3} + \frac{3}{4}$

4. Express 50cm in metres.

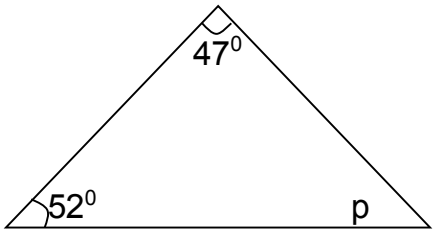
5. Simplify: $3a - 4a + 7a$

6. Find the square root of $1\frac{7}{9}$

7. A trader sold a radio at Sh. 125,000 and made a profit of Sh. 9000. How much did he buy the radio?

8. Find the greatest common factor of 12 and 18.

9. Calculate the value of angle p in the figure below.



10. The cost of 3 books is sh. 27000. How many books would one buy with sh. 45000?

11. Add: $1011_{two} + 111_{two}$

12. Solve: $3y + 5 = 20$

13. Shade $\frac{3}{4}$ of the given figure.

14. A milk man has 12 litres of milk. He packs the milk in half litre sachets. How many half litre sachets did he get?

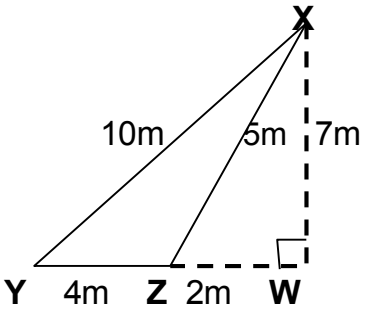
15. Work out: 4 - 5 = (Mod 7)

16. Find the product of 321 and 23.

17. Express 3. 30p.m in a 24-hour clock.

18. Find the prime factorization of 36. (answer in set notation)

19. Calculate the area of triangle **XYZ** in the figure below.



20. If set **N** = {1, 2, 3} Using listing method, find the number of subsets that can be got from set **N**.

SECTION B: (60 MARKS)

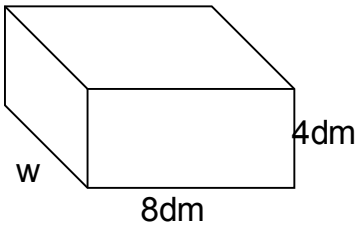
21. In a class of 72 children, $\frac{2}{3}$ of them like sports and the rest like music.

(a) How many children like sports? *(2 marks)*

(b) What fraction like music? *(2 marks)*

(c) How many more pupils like sports than music? *(2 marks)*

22. (a) The volume of the figure below is 160 cu.dm. Calculate its width. *(3 marks)*



(b) Find its total surface area. *(3 marks)*

(c) How many vertices does it have? *(1 mark)*

23. Miiro scored the following marks in a test.
50, 60, 55, 50, 80

(a) Find his mode mark. *(2 marks)*

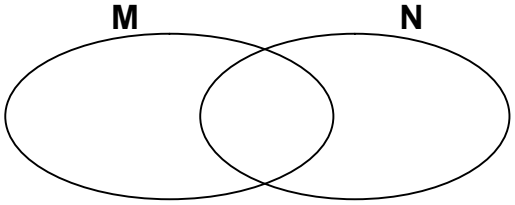
(b) Work out his mean mark. *(2 marks)*

(c) What was his median mark? *(2 marks)*

24. Given that set **M** = {the first five alphabetic letters} and set **N** = {vowels}

(a) Show this information on the venn diagram below. *(3 marks)*

(b)



(1 mark)

(c) Find **N** – **M** *(1 mark)*

25 (a) Draw a regular triangle in a circle with a radius of 4cm. *(4 marks)*

(b) What special name is given to this triangle? *(1 mark)*

26. (a) Musoke drove a car at a speed of 60km per hour for 2 hours. What distance did he cover? *(2 marks)*

(b) How long would he take to cover 80km? *(2 marks)*

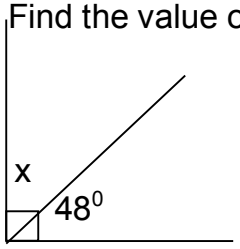
27 Lukia went shopping with Sh. 50000 note and bought the following: -
2kg of rice at sh. 2800 @ kg
4 bars of soap at sh. 2500 each.
5kg of salt at sh. 3000
1 ½ kg of maize flour at sh. 1600 per kg.

(a) Calculate her bill. *(4 marks)*

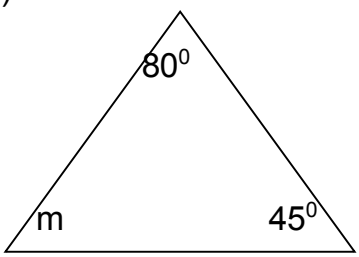
(b) What change did she get? *(2 marks)*

28. Find the value of unknown angles. *(2 marks each)*

(a)



(b)



29. Juma used his land as follows: -

¼ for growing crops.

$\frac{1}{3}$ for grazing goats

$\frac{1}{6}$ for a house and compound and the rest for rearing birds.

Draw a pie chart of radius 3.5cm to show the above information.
(4 marks)

30 Complete the statements using >, < or = *(1 mark each)*

(a) 3 + 2 _____ 2 x 3

(b) 72 ÷ 6 _____ 5 + 7

(c) 104^0 _____ 104 x 0

(d) 1kg of stones _____ 1000 gm of cotton

31. (a) Arrange the following in descending order.

$\frac{2}{3}, \frac{7}{12}, \frac{1}{2}, \frac{3}{4}, \frac{5}{6}$ *(3 marks)*

(b) Simplify: $\frac{1}{3} - \frac{1}{2} + \frac{1}{4}$ *(2 marks)*

32. Work out: *(2 marks each)*

(a)

Wks	**Days**
5	2
- 3	6

(b)

Hr	**Min**
3	48
+4	52

Good Luck

MATHEMATICS

Time Allowed: 2 Hours 30 Minutes

INDEX NUMBER	EMIS No.						Personal No.		

Candidate's Name.....**Stream**.....

Candidate's Signature.....

EMIS No. .....

District Name.....

Read the following instructions carefully

1. This paper has **two** sections: **A** and **B**. Section **A** has **20** questions and Section B has 12 questions.
2. Answer **all** questions. **All** the working for both sections **A** and **B** must be shown in the spaces provided.
3. **All** working must be done using a **blue** or **black** ball-point pen or fountain pen. Any work done in pencil other than graphs and diagrams will not be marked.
4. No calculators are allowed in the examination room.
5. Unnecessary changes in your work may lead to loss of marks.
6. Any handwriting that cannot easily be read 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'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

1. Work out: 621 ÷ 3

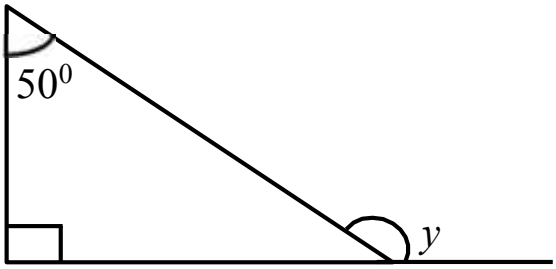
2. Write “Four hundred nine” in Roman numerals.

3. Simplify: $3(a - 4) - 2(a + 5)$

4. Twelve litres of milk were given to some children. If each child got ¾ of a litre of milk, how many children got the milk?

5. The LCM of two numbers is 60 and their GCF is 3. If one of the numbers if 15, find the second number.

6. Find the size of angle y in the figure below.



7. Andrew deposited sh. 600,000 in the bank that offers an interest rate of 3% per year for 1½ years. Find the interest earned by Andrew.

8. Change 25 m/s into km/hr.

9. A mathematics lesson ended at 1: 25 pm. If it had lasted for 1¾ hours, at what time did the lesson start?

10. In the space below, construct an angle of 150^0.

11. Show 134_{six} on the abacus.

12. Increase sh. 4000 by 12½%.

13. If today is Thursday. What day of the week was it 33 days ago?

14. Find the sum of the next two numbers in the sequence below;
1, 2, 5, 10, 17,_____,_____.

15. Find the range of $^{-}9$ and $^{-}5$.

16. Solve: $5 - 3x = 17$

17. Work out: $5\frac{3}{4} \div 2\frac{1}{4}$

18. Calculate the radius of the circle whose circumference is 88 m. (Take π as $\frac{22}{7}$).

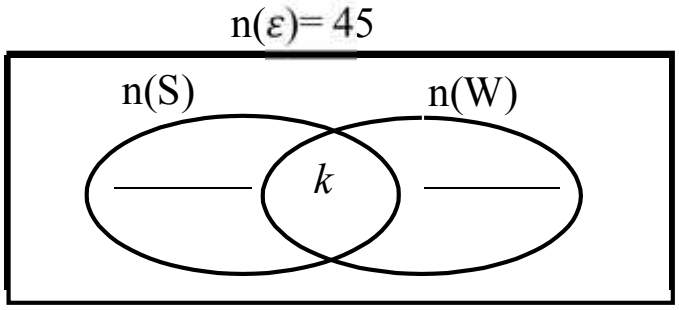
19. If 5 men take 4 days to paint the house, how many more days will 2 men take to paint the same house?

20. If R has 63 proper subsets, find n(R).

SECTION B: (60 MARKS)

21. In a party of 45 guests, 30 drink soda (S) , 20 guests drink water (W), k drink both soda and water while 4 guests do not drink any of the two drinks.

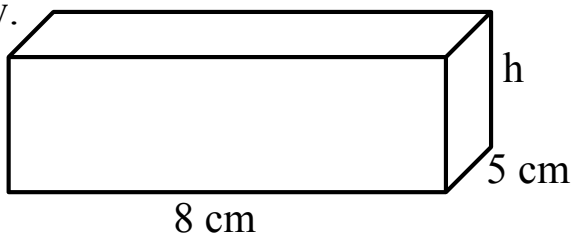
a) Complete the Venn diagram below. *(3marks)*



b) Find the value of k. *(2marks)*

c) How many guests drink only one drink? *(1mark)*

22. The volume of the figure below is 240 cm^3. Use it to answer the questions that follow.



a) Find the value of h.

b) Work out the total surface area of the figure above.

23. The sum of the values in the table are the same vertically, horizontally and diagonally. Fill in the missing values to complete the table.

1	15	14	4
12	……..	7	9
8	10	……..	5
……..	……..	2	……..

24. a) Using a ruler and a pair of compasses only, construct a triangle PQR in which PQ = PR = 6.5cm and angle QPR = 90^0. *(4marks)*

b). Measure the line QR. *(1mark)*

25. The table below shows the marks scored by pupils in a mathematics test.

Marks scored	80	70	90	60
Number of pupils	2	3	1	4

a) How many pupils sat for the test? *(2marks)*

b) Find the mode. *(1mark)*

c) How many pupils scored above the mean mark? *(2marks)*

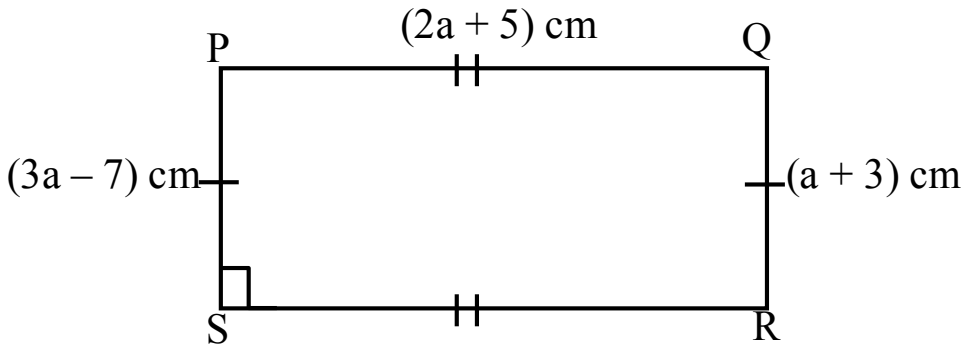
26. Mutoni went to the market and bought the items as shown on the table below.

Item	**Quantity**	**Unit price**	**Total cost**
Sugar	2 kg	Sh. 3,500 per kg	Sh……..
Meat	…….kg	Sh. 8,000 per kg	Sh. 24,000
Milk	2½ litres	Sh. 1,200 each litre	Sh. …….
Bread	4 loaves	Sh. ……. @ loaf	Sh. 8,000
	Total expenditure		Sh. …….

a) Complete the table above. *(5 marks)*

a) If she went with sh. 50,000, find her change. *(1 mark)*

27. Study the diagram below and use it to answer the questions that follow.



a) Find the value of a.

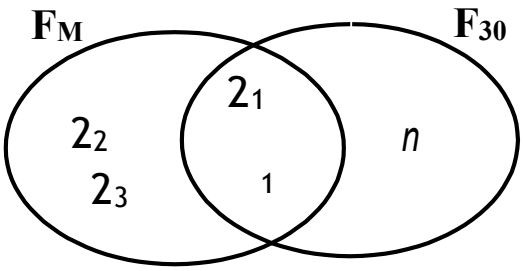
b) Work out the area of the figure above.

c) Calculate the total distance round the figure above.

28. a) Work out: $\frac{\square \times \square.\square}{.8 \times \square.\square}$ *(3 marks)*

b). Simplify: $\frac{-}{-} \times \div \frac{-}{-}$ *(2 marks)*

29. The Venn diagram below represents the prime factors of two numbers. Use it to answer the questions that follow.



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

b) Calculate the value of M. *(2marks)*

c) Work out the GCF of M and 30. *(2marks)*

30. a) Solve: $\frac{2}{3}y + 4 = 10$ *(2 marks)*

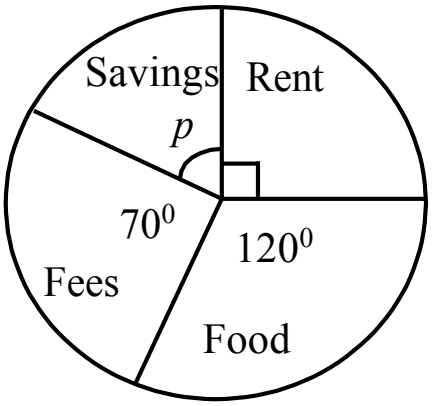
b) Olupot is 5 years older than his brother Jamwa. If their total age is 35 years, how old is Jamwa? *(2 marks)*

31. John, Fatima and Daniel shared a certain amount of money in the ratio of 2: 4: 3 respectively. If Daniel got sh. 150,000;

a) How much money did they share altogether? *(4 marks)*

b) How much more money did Fatuma get than John? *(1 marks)*

32. The pie-chart below shows Muzorewa's monthly expenditure. Use it to answer the questions that follow.



a) Find the value of p in degrees. *(2 marks)*

b) If he spends sh. 180,000 on rent, find his monthly income. *(3 marks)*

END

PRIMARY SEVEN MATHEMATICS

NAME: _____

CLASS: _____ **STREAM:** _____

Section A.

1. Divide: **3 ÷ 6**

2. Change **8.97**km to metres.

3. Write '**four hundred two thousand, five hundred seven**' in figure.

4. Solve: $\frac{3}{4}x - 2 = 10$

5. Muggaga's salary is sh.**240,000**,what is **60%** of his salary?

6. Change $\mathbf{33}_{\mathbf{five}}$ to base two.

7. Find the L.C.M of **15** and **18**.

8. Calculate the value of **r**.

$$\begin{matrix} \mathbf{2r} & \mathbf{r} \end{matrix}$$

9. Given that a= $\frac{1}{2}$, b= $\frac{1}{4}$ and c = $\frac{1}{3}$, find $a_b \div c$

10. Simplify; **3r + 4p – r -5p**

11. Write **0.0109** in standard form.

12. Work out $\mathbf{1000}_{\mathbf{two}} - \mathbf{11}_{\mathbf{two}}$.

13. **12**men need **5** days to build a perimeter wall. How many men can do the same work in **3** days?

14. Solve: $\mathbf{2}^{x} \div \mathbf{2}=\mathbf{8}$

15. There are **6315** books to be packed in **15** boxes. How many books will be packed in each box?

16. The ratio of girls to boys in a class is **3:5** respectively. If there are **30** boys. How many girls are in the class?

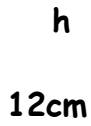
17. Work out; **3.65 - 4.92 + 2.72**

18. Find the unknown base.

$34_{five} = 201_{K}$.

19. The area of the figure below is $36cm^2$.

Find the height.



20. What number has been expanded?

$(6x10^4) + (5x10^2) + (5x10^0)$

SECTION B

21. Two girls Bonitah and Damalie reported at the sickbay at an interval of **40mins** and **35mins** respectively.

a) After how did the two girls report at the sick bay at the same time? (**3 marks**)

b) If the two girls reported together at the sickbay at **11:15am**. At what time will they report at the sickbay together again? (**2 marks**)

22. Multiply. (**2 marks**) (**2 marks**)

a) 4 1 3

x 4 6

b) 23 10626

c) Write **0.415** in standard form.(**2 marks**)

23. a) Given that **m=3** and **n=4**, find the value of **2m – 2m**.(**2 marks**)

b) Subtract: (**2x-3y**) from (**4y – 9y**) (**2 marks**)

24. Subtract; (**3 marks**)

a) $2\ 2\ 1_{three}$

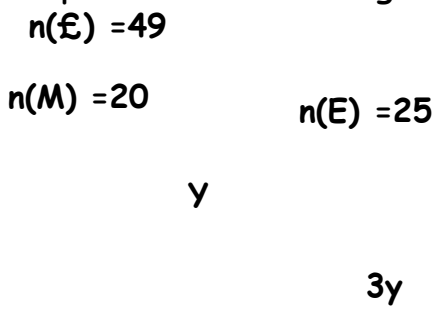
$-1\ 1\ 2_{three}$

b) Today is Monday, what day of the week will it be after **36** days? (**2 marks**)

25. A car takes **3** hours to cover a certain journey at **60**km/hr but it takes only **2** hours to return through the same distance.
Calculate the average speed for the whole journey. (**5 marks**)

26. In a class of **49** pupils, **20** like Maths(M), **25** like English (E) and Y like both Maths and English, **3y** like neither of the two subjects.

a) Complete the Venn diagram. (**2 marks**)



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

c) How many pupils like neither Maths nor English? (**2 marks**)

27. Work out: a) $\frac{4.2x4.8}{9.6}$ (**2 marks**) b) $\frac{2}{3} \div \frac{4}{8} x \frac{3}{4}$ (**2marks**)

28. The rectangle **A** and square **B** have the same area.

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

b) Work out the perimeter of the square. (**2 marks**)

29. a) Find the least number that gives remainder **3** when divided by either **6** or **8**. (**3 marks**)

b) Factorize completely $\mathbf{6a^2f - 3af^2}$(**3marks**)

30. Joanitah went shopping and bought the following items.

3kgs of meat at sh.9000 per kg. (**5 marks**)

5kg of rice at sh. 4000 per kg.

2 $\frac{1}{2}$ litres of milk at sh.1200 per litres.

a)Find her total expenditure.

b)If she went with a fifty thousand shilling note. How much was her change?

31. In a class, $\frac{3}{7}$ are boys and there are **40** girls in the class.

a) Find the total number of pupils in the class. (**3 marks**)

b) How many boys are in the class? (**2 marks**)

32. a) Solve for **K. 3(K + 4) – 2 (K-4) = 8**(**3 marks**)

b) Solve: $\frac{3}{5}k - 5 = 10$ (**2 marks**)

End

PRIMARY SEVEN MATHEMATICS

NAME: _____

CLASS: _____ **STREAM:** _____

Section A.

1. Simplify: $\frac{4}{7} + \frac{4}{7} =$

2. Write **XCVI** in Hindu Arabic numerals.

3. Simplify: 3k + 4y – 3k -5y.

4. Change 840m to km.

5. Using a pair of compasses construct an angle of 75°.

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

7. Kapere bought a radio for sh 60,000 and sold it at a loss of sh.15000. At how much did Kapere sell the radio?

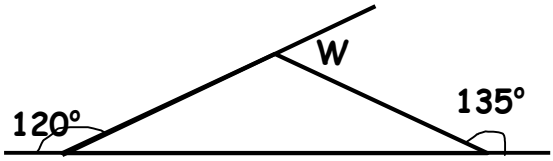
8. Express 20cm as a percentage of 1m

9. Find the next number in its sequence.

   3, 8, 6, 11, 9, _____,

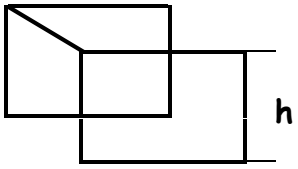
10. Express 2:30 pm in 24 hour clock system.

11. Find the size of angle **W**.



12. Mugaga covered 240km in 2 hrs 30mins. At what speed was he moving?

13. The volume of the figure below is $72cm^3$. If its base area is $36cm^2$. Find its height.



14. What number has been expanded to give;
$(8 \times 10^{-4}) + (7 \times 10^{3}) + (4 \times 10^{1})$

15. Round off 86955 to the nearest thousands.

16. Find the range of 3, -4, 5, -6 and 0.

17. Find the unknown base;
$31_{W} = 13_{ten}$

18. Simplify: $^{+}4 - {}^{+}6$.

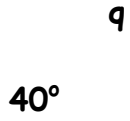
19. Set R has 16 subsets. Find n(R).

20. Find the mean of 3y,0,2y, 7 and 3

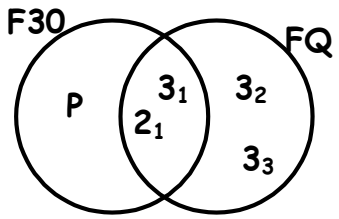
SECTION B

21. a) (X + 40°) and 30° are complementary angles. Find the value of **X**. **(3 marks)**

b) Find the size of angle **Q**. **(2 marks)**



22. **Below is a Venn diagram**, use it to answer questions that follow.



a) Find the value of P. **(1 mark)**

b) Find the value of Q. (**1 mark**)

c) Work out the L.C.M of 30 and Q. (**2 marks**)

23. a) In a basket, there are 11 red balls, 6 blue balls and 9 pink balls.
Find the probability of picking a ball which is;
i) blue (**2 marks**) ii) red (**2 marks**) iii) pink(**2 marks**)

24. The circumference of the circle is 132cm.
a) Find its radius. (**3 marks**) b) Work out its area. (**2 marks**)

25. The mean of X, X-2, 6, 5 and 4 is 9.
a)Find the value of X. (**3 marks**)

b)Find the range of the number. (**2 marks**)

26. a) Change 32_{five} to base two. (**3 marks**)

b) Subtract: $4\ 0\ 2_{five}$ (**2 marks**)

$$\underline{\quad -\ 4\ 4_{five}}$$

27. Candidates scored the following marks;
50, 75, 60, 75, 80, 60, 75, 90, 80 and 75. (**3 marks**)

a) Represent the information above on the table below.

Marks scored	60		80	50
No. of pupils		4		

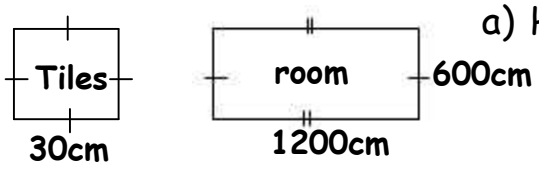
b) Calculate the average mark. (**2 marks**)

28. A trader borrowed sh.1,200,000 from the bank which offers an interest rate of 20% p.a for 2 years.

a) How much interest did he pay? (**3 marks**)

b) Work out the amount of money he will take back. (**2 marks**)

29. Tiles were put in a rectangular room as shown below.

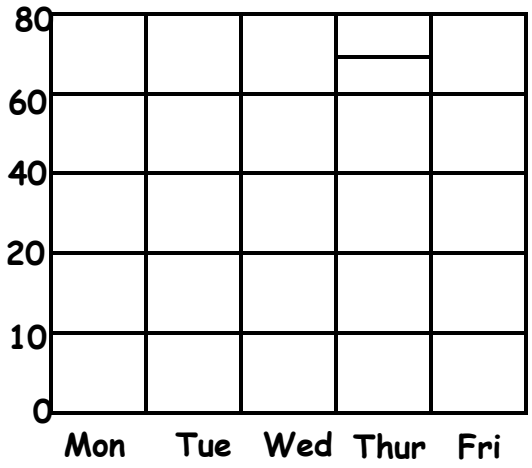


a) How many tiles were put in the room? **(4 marks)**

b) If each tile costs sh13,500. How much was needed to buy the tiles? (**1 mark**)

30. Using a pair of compasses, a ruler and a sharp pencil only, construct a triangle PQR where P=60°, Q=45° and PQ =8cm. (**5 marks**)

31. The graph below shows the number of pupils who were absent in a certain week in a P.4 class of 65 learners.

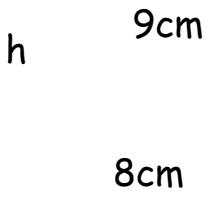


a) How many pupils were present on Wednesday? (**1 mark**)

b) On which day was the highest number of pupils present? (**2 marks**)

c) Work out the mean attendance of the class in the week. (**2 marks**)

32. The area of the figure below is $48cm^2$.



a) Find its height (**3 marks**)

b) Work out its perimeter. (**2 marks**)

End

PRIMARY SEVEN HOLIDAY PACKAGE FOR TERM ONE
2020
SET ONE

MATHEMATICS

Time Allowed: 2 Hours 30 Minutes

	EMIS No.						Personal No.		
INDEX NUMBER									

Candidate's Name.....**Stream**.....

Candidate's Signature.....

EMIS No. .....

District Name.....

Read the following instructions carefully

1. This paper has **two** sections: **A** and **B**. Section **A** has **20** questions and Section B has 12 questions.
2. Answer **all** questions. **All** the working for both sections **A** and **B** must be shown in the spaces provided.
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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'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

1. Work out: 3 4 x 3

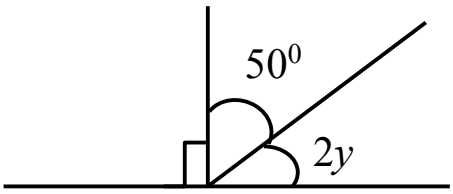
2. Write XCIX in words.

3. Simplify: $a^2 \times a^3$

4. How many 0.25 kg packets of sugar can be got from 5 kg?

5. Find the square root of 1.44

6. Find the size of angle y in the figure below.



7. Musa deposited sh. 400,000 in the bank that offers an interest rate of 5% per month for 6 months. Find the amount of money he earned at the end of the period.

8. Change 20 m/s to Kilometres per her.

9. Convert 14 40 hour to a 12 – hour clock system.

10. Using a ruler and a pair of compasses only, construct an angle of 45^0.

11. Express 34_{five} into a binary base.

12. A man bought a watch at sh. 25,000 and later sold it at sh. 30,000. Calculate his percentage profit.

13. Work out: $2 - 5 =$ ____ (mod 6)

14. Find the smallest number of mangoes that can be divisible by 6 or 9 pupils and leaves 2 as a remainder.

15. Calculate the range of $^{-}8$ and $^{-}1$.

16. Solve: $3a - 6 = a + 4$

17. A lady had sh. 27,000 in her bag. She spent $\frac{4}{9}$ on meat. How much money did she remain with?

18. The circumference of a circle is 88 m. Find its radius (Take π as $\frac{22}{7}$).

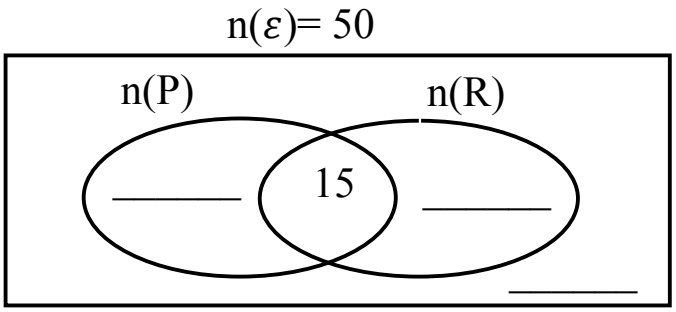
19. If 8 girls can take 5 days to do a piece of work. How many more boys can 4 girls take to do the same piece of work?

20. There are 32 subsets in set D. How many members can be got from set D?

SECTION B: (60 MARKS)

21. In a class of 50 pupils, *h* like Posho (P), 25 like rice (R), 15 like both posho and rice while 5 pupils do not like any of the two types of food.

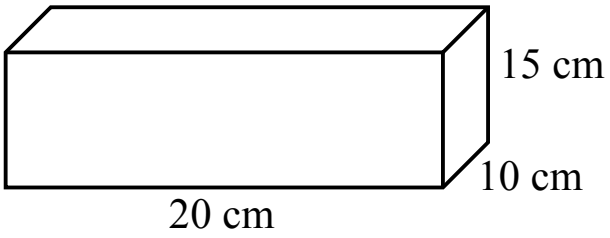
a) Complete the Venn diagram below. *(3marks)*



b) Find the value of *h*. *(2marks)*

c) How many pupils do not like posho? *(1mark)*

22. The figure below is a cuboid. Use it to answer the questions that follow.



a) How many litres of water can the figure above hold when it is completely full? *(2 marks)*

b) Work out the total surface area of the figure above. *(2 marks)*

23. Three bells ring at the intervals of 30 minutes, 40 minutes and 45 minutes respectively. If they rang together at 11 : 50 am,

a. After how long will the three bells ring together again? *(2 marks)*

b. At what time will the three bells ring together again? *(2 marks)*

24. a) Using a ruler and a pair of compasses only, construct a triangle ABC in which AB = 7 cm, AC = 5 cm and angle BAC = 120^0. *(4marks)*

b). Measure the line BC. *(1mark)*

25. The table below shows the marks scored by pupils in a mathematics test.

Marks scored	80	70	90	p
Number of pupils	2	3	1	4

a) How many pupils sat for the test? *(2marks)*

b) If the mean mark is 70, find the value of p? *(2marks)*

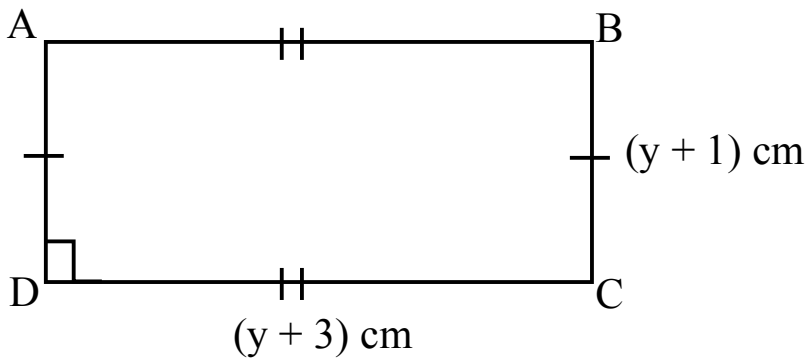
26. Mary went to the market and bought the items as shown on the table below.

Item	**Quantity**	**Unit price**	**Total cost**
Sugar	……. kg	Sh. 3,000 per kg	Sh. 9,000
Meat	2 kg	Sh. 12,000 per kg	Sh.....
Milk	1½ litres	Sh. ……. each litre	**Sh. ……**
Bread	3 loaves	**Sh. ……..** @ loaf	Sh. 13,500
	Total expenditure		**Sh. 50,700**

a) Complete the table above. *(5 marks)*

a) If she was given a discount of 10%, how much money did she pay? *(1 mark)*

27. The perimeter of the rectangle below is 28 cm. Study it carefully and use it to answer the questions that follow.



a) Find the value of y. *(3 marks)*

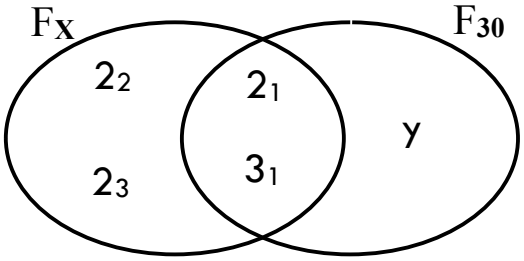
b) Work out the area of the figure above. *(2 marks)*

28. In a school of 2000 pupils, $\frac{3}{4}$ of them are girls and the rest are boys. If $\frac{2}{3}$ of the girls and $\frac{3}{5}$ of the boys are in lower primary,

a. How many boys are in the school? *(2 marks)*

b. Find the number of pupils in upper primary. *(3 marks)*

29. The Venn diagram below represents the prime factors of two numbers. Use it to answer the questions that follow.



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

b) Calculate the value of y. *(2marks)*

c) Work out the LCM of X and 30. *(2marks)*

30. a) Solve: $2(2a + 4) – 2(a – 2) = 6$ *(2 marks)*

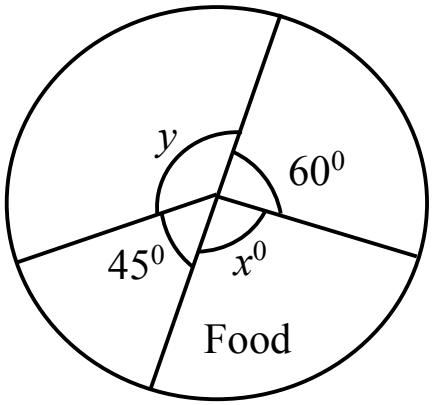
b) If p = 3, q = $^{-}4$ and r = 2, find the value of $\frac{pr-q}{p-q}$ *(2 marks)*

31. Moses, Timothy and Robert shared a certain amount of money in the ratio of 2: 3: 5 respectively. If Robert got sh. 60,000 more than Moses,

a) How much money did they share altogether? *(4 marks)*

b) What percentage of the money did Timothy get? *(1 marks)*

32. The pie-chart below shows Muzorewa's monthly expenditure. Use it to answer the questions that follow.



a) Find the value of y in degrees. *(2 marks)*

b) Work out the size of angle marked x. *(2 marks)*

c) If he spends sh. 120,000 on rent, find his monthly income. *(2 marks)*

END

PRIMARY SEVEN HOLIDAY PACKAGE FOR TERM ONE
2020
SET FOUR
MATHEMATICS

Time Allowed: 2 Hours 30 Minutes

	EMIS No.						Personal No.		
INDEX NUMBER									

Candidate's Name.....**Stream**.....

Candidate's Signature.....

EMIS No. .....

District Name.....

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16 - 20		
21 - 22		
23 - 24		
25 - 26		
27 - 28		
29 - 30		
31 - 32		
TOTAL		

SECTION A: 40 MARKS

1. Add: 2 5 4 + 3 8

2. Work out: $\bar{8} - \bar{3}$

3. Simplify: 5x – 3p – 2x + 5p

4. Given that set P = {1, 2, 3, 5}, how many subsets has set P?

5. Change $3\frac{1}{5}$ kg to grams.

6. What is the next number in the sequence below?

   1, 8, 27, 64, _____.

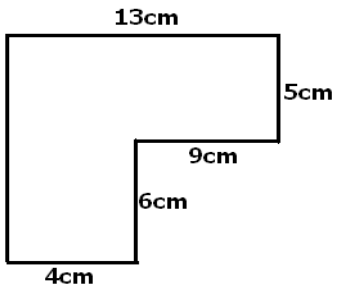
7. Round off 7.964 to the nearest tenths.

8. Using a pair of compasses, a ruler and a pencil only, construct an angle of 120^{o}

9. Express 0.0684 in standard form.

10. Solve: $3(x + 4) = 21$

11. Find the perimeter of the figure below.



12. Find the simple interest on sh.120, 000 deposited in the bank at an interest rate of 5% per annum for 9 months.

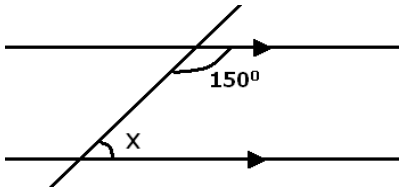
13. Find base p given that $23_p = 15_{ten}$.

14. Work out: 3 – 4 = ____ (Finite 5)

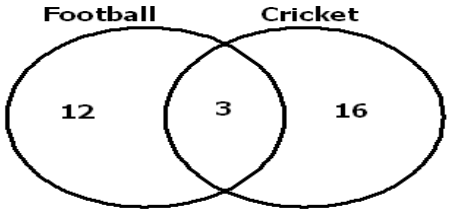
15. The cashier of Hillside P/S has a bundle of ten thousand shillings notes numbered consecutively from PQ 011563 to PQ 001612. How much money has she?

16. Given that q = 4 and b = $\bar{}2$, find the value of 2q – b.

17. Find the value of x.



18. The Venn diagram below shows the number of pupils who play football (F) and Cricket (C). How many pupils enjoy games?



19. The price of a shirt was increased by 10%. If the new price of sh. 44,000, find the old price.

20. Abdul is ***x*** *years* old. He is 5 years younger than Madina. How old is Madina?

SECTION B: 60 MARKS

21. At a wedding party attended by 40 guests, all drank water, 18 drank soda and water, 20 drank juice and water, 2 took all the three drinks, y guests drank water only.
    (a) Represent the above information on a Venn diagram.

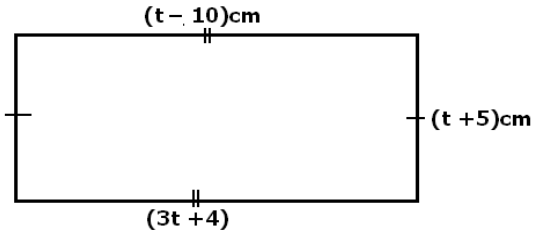
    (b) How many guests drank juice only?

    (c) Find the total number of members who took only two drinks.

22. In an examination containing 30 questions, 3 marks are awarded for every answer got correct and a mark is deducted for every number failed.
    (a) Kafunvu got 20 questions correct, how many marks did he score

    (b) Sumayiya scored 66 marks, how many numbers did she fail?

23. Use the figure below to answer the questions that follow.



a) Find the value of t.

b) Find the length and width of the figure.

c) Work out the perimeter.

24. Jinja and Kampala are 90 kilometres apart. A motorist left Jinja for Kampala reaching it within 2 hours and returned within $2\frac{1}{2}$ hours.

a) Find the speed of the motorist from Jinja to Kampala.

b) Work out the average speed of the motorist for the whole journey.

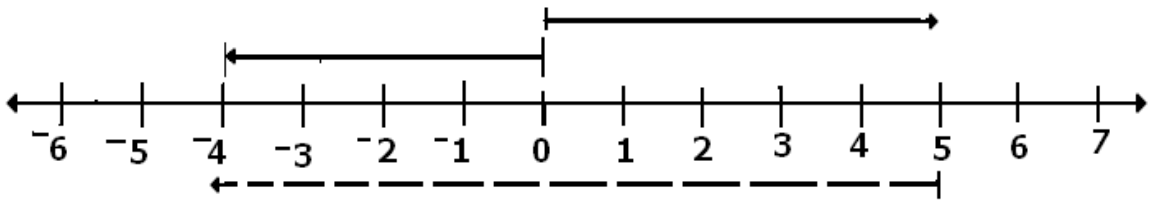
25. a) Using a ruler, a pencil and a pair of compasses only, construct triangle MTN where angle TMN = 60^0, angle MNT = 45^0 and MN = 8 cm

b) Measure:

(i) Angle MTN

(ii) Line TM

26. a) Write the integers represented by the arrows on the number line below.



b) Write the mathematical statement that has been represented on the number line by the arrows.

27. Olanya had sh.55,000 and he bought the following items in the table below:

ITEM	QUANTITY	UNIT COST	TOTAL
Knickers in dozen	$\frac{1}{2}$ dozen	Sh.12000	Sh……
Skirts	2 skirts	Sh……	Sh.16,000
Stockings in dozen	……dozen	Sh.1500	Sh.4,500
Blouses	2 blouses	Sh.6250	Sh……

a) Complete the table above correctly.

b) If he was given a discount of 10%, how much money did he pay for the items?

28. Mr. Web spends 25% of his salary on fees, 30% on food, 35% on medical care and saves the rest. Using a radius of 3.5cm, draw an accurate pie chart to show the above information.

29. Jane used $\frac{1}{3}$ of her salary on food, $\frac{2}{5}$ on clothing and saved the rest of her salary.
a) What fraction of her salary did she save? (3mks)

b) If she saved sh.240000, find her monthly salary.

30. The exchange rate of one United States Dollar to Uganda shillings is US $ 1 to Ug. Sh. 3800 and the exchange rate of one Kenya shilling to Uganda shillings is Ksh.1 to Ug.sh. 35.

a) If Mr. Azania was given Ksh.19000, how many United States dollars did he have?

b) How much money in Uganda shillings do I have if I am given US $ 1500?

31. Bunjako had a sum of money which he gave out to his daughters Irene, Sylivia and Joan in the ratio of 4: 5: 6 respectively. If Irene got sh. 80,000 less than Joan, find the amount of money he gave out to his daughters.

a) How much was each given?

b) What percentage of the money did Joan get?

32. The table below represents the weight of girls in P.7 at St. Patrick Primary School. Study it carefully and answer the questions that follow.

Weight in kg	No. of girls	Tallies	Total
27	10	_____	_____
30	_____	_____	240
_____	6	𝍸 /	120
15	_____	_____	180
35	4	_____	_____
_____	10	𝍸 𝍸	400

a) Complete the table above.

b) Find the modal weight.

c) Calculate the average weight.

P.7 MATHEMATICS PRACTICE SET 2(B)

Name: _____ Stream: _____

SECTION A

1. *Multiply 23 by 3*

2. *Write 60016 in words.*

3. *Given that set M = {1, 2, 3, 4, 5} and set N = {2, 4, 6, 8, 10}.*
   Find (M ∩ N)/

4. *Add:* $\frac{2}{3} + \frac{1}{4}$

5. *Simplify: (2x – 2) – (x + 2)*

6. *Find the next number in the sequence.*
   21, 23, 26, 31, 38, _____

7. Using a ruler, a pencil and a pair of compasses only, construct an angle of 75^{o}.

8. By selling an article at sh.42500 a trader makes a loss of 15%. Find the cost price of the article.

9. Express 125 g as a ratio of a kilogram.

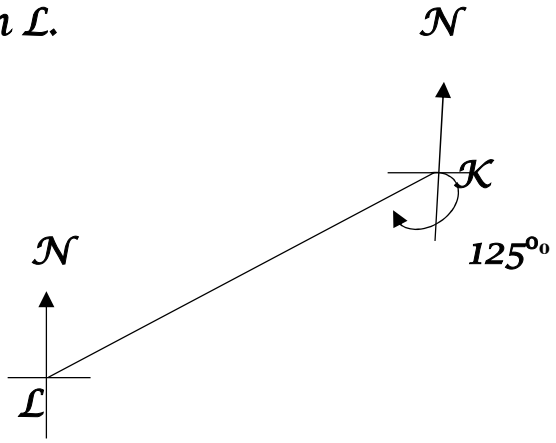
10. Subtract 213_{five} from 311_{five}

11. Solve the inequality: $2 - 3x \leq 11$

12. Write 0.0013 in standard form.

13. Express 20m/sec as speed in km/hr.

14. Use the diagram below to find the bearing of town K from town L.



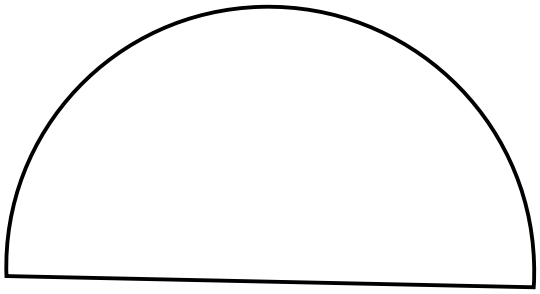
15. Solve for x: $3^{3x} \div 3^2 = 243$.

16. A workshop started at 9:30 am and ended at 3:15 pm. How long did it take?

17. Given that three times a number is 15 more than a half of that number. Find the number.

18. Arinda deposited sh. 900,000 in a bank that offers an interest rate of 14% per annum. Find how much interest she got after 1 year and 8 months.

19. The length of the curved edge on the figure below is 33cm. Find the total distance around the curve.



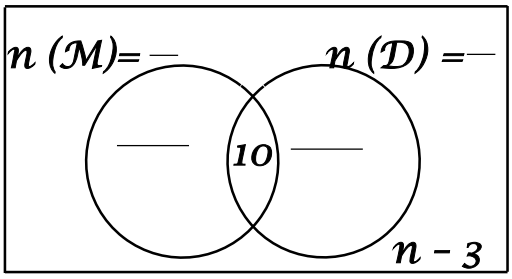
20. Simplify : $^{-}3 - {}^{+}2$

4

SECTION B

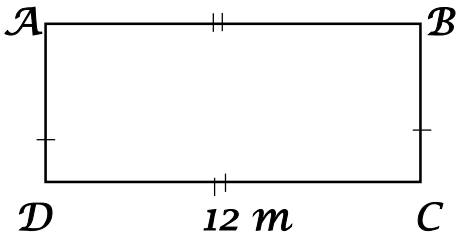
21. *In a class of 35 learners, Students like Music (M) only. n like Dance (D), 10 like both activities and n – 3 do not like any of the two activities.*

(a) *Use the above information to complete the Venn diagram below* $n(\varepsilon) = 35$ *b) Find the value of n.*



c) Find the total number of learners who do not like Music.

22. *Below is a rectangle ABCD. Study it and use it to answer the questions that follow:*



a) If its perimeter is 34 m, find its area.

b) Find the length of diagonal BD.

23. (a)Work out: $\frac{0.36 \times 2.5}{1.2 \times 0.05}$

(b) Express 0.36..... as a common fraction in its simplest form.

24. Vicky went shopping and bought the following items.

2 kg of sugar at sh.3000 per kg.

1½ litres of milk at sh.1200 per litre.

250g of tea leaves at sh.2000 per kg.

A 2 kg loaf of bread at sh.7000.

15 eggs at sh.500 for 3 eggs.

(a) Work out her total expenditure.

(b) If he is given a discount of 15%, how much will he pay?

25. (a) Using a ruler, a pencil and a pair of compass, construct a triangle JKL where line JK = 6 cm, $<LJK = 60^{o}$, $<JKL = 45^{o}$. Drop a perpendicular line from point L to meet line JK at T.

(b) Measure line LT use it to find the area of the triangle.

26. A man spends $\frac{1}{5}$ of his salary on fees, $\frac{1}{8}$ of the remainder on medical care and he saves the rest which is sh.350, 000.

(a) How much is his salary?

(b) How much more does he save than he spends?

27. The table below shows the exchange rates of different currencies in a commercial bank.

Currency	Buying (Ug. sh.)	Selling (Ug sh.)
1 Us. Dollar ($)	3100	3150
1 Uk. Pound	4200	4450
1 K. sh.	28	30

a) If Mr. Manoti has Us. Dollar 13250, How much will he get in Ug.sh?

b) How many pounds can one get from K.sh.89000?

28. A motorist left town P driving at a speed of 80km/hr for 2½ hours to reach town Q.

He rested for 15 minutes and drove back to town p driving at an average speed of 160 km/hr.

a) Find the distance from town P to town Q.

b) Calculate his average speed for the whole journey.

29. The table below shows how a class performed in a given test. Study it carefully and use it to answer the questions that follow:

Mark	70	80	50	75	94
No. of learners	1	3	2	2	5

(a) What was the modal frequency?

(b) Work out the range of the scores.

(c) If the pass mark was 74.Find the average of all the learners who passed the test.

30. A daughter is 20 years younger than her mother. In 10 years time, the daughter's age will be a half her mother's age.

(a) Find the daughter's age now.

(b) How old will the mother be in 10 years' time?

31.(a) What number has been expanded as below?

$(3 \times 10^{3}) + (5 \times 10^{0}) + (7 \times 10^{-1}) + (9 \times 10^{-2})$

(c) Round off 36.971 to the nearest tenths.

32. Airport X is 800km away from Airport Y on a bearing of 150°.

Airport Z is 600km away from airport X on a bearing of 240°.

(a) Draw a sketch showing the three Airports.

(b) Construct an accurate diagram using a scale of 1 cm : 100km, Showing the three Airports

(c) Find the shortest distance between Airport Z and Airport Y.

END

MATHEMATICS

Time allowed: 2 hours and 30 minutes

NAME: _____

District: _____

Stream: _____

Date: _____

EXAMINER'S USE ONLY

A	
B	
TOTAL	

Read the following instructions carefully:

1. **The paper is made up of section A and B.**
2. **Section A has 20 short answer questions (40 marks).**
3. **Section B has 12 questions (60 answers).**
4. **Answer ALL questions. All answers to both section A and B must be written in the spaces provided.**
5. **All answers must be written in blue ink.**
6. **Any handwriting that cannot easily be read will lead to loss of marks.**
7. **Unnecessary alteration of work may lead to loss of marks.**
8. **Do not write anything in the box indicated examiner's use only.**

PARENT'S COMMENT	SIGNATURE

SECTION A:

1. Work out: 65 – 23

2. Write 2543 in words.

3. Work out: $^{-}4 - {}^{+}3$

4. Evaluate: $2y - 3 = 7$

5. Given that K and Q are sets. Draw a Venn diagram to represent $K \cap Q = Q$.

6. Find the Greatest Common Factor (GCF) of 24 and 36.

7. Using a pair of compasses, ruler and a pencil only, construct an angle of 45^{o}.

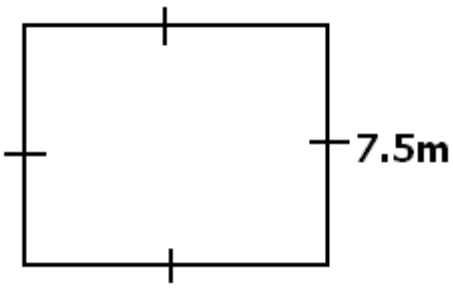
8. A trader sold a pair of trousers at sh.27000 making a profit of sh.1500. What was the cost price of the pair of trousers?

9. A forty-minute lesson ended at 11:20 a.m. At what time did it begin?

10. In a class of 48 pupils, $^{5}/_{8}$ of them are boys. How many girls are in the class?

11. Find the mean of x + 8, 7 and 2x.

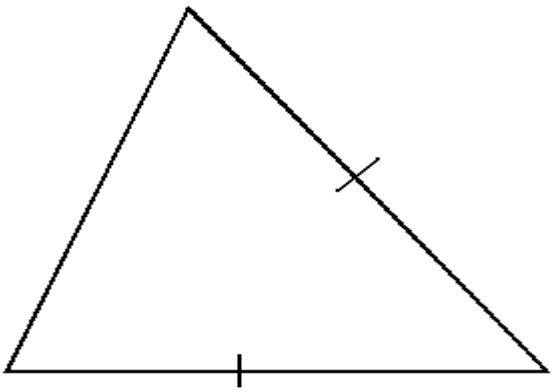
12. Work out the perimeter of the figure drawn below.



13. Find the value of K in $25_k = 19_{ten}$

14. Work out the next number in the sequence: 1, 8, 27, 64, 125, _____

15. How many lines of folding symmetry does the figure below have?



16. How many 25cm pieces of wire can be cut out from a long wire of 6.5 metres?

17. If n(A)=6, n(B)=8 and n(A∩B)=3, find n(AUB).

18. Subtract 2a + 3 from 5a – 4.

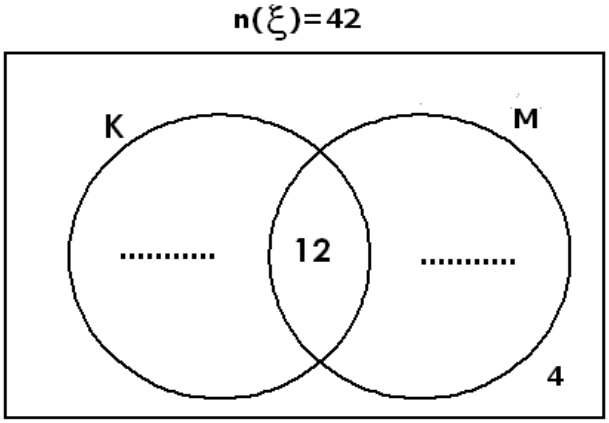
19. The probability of picking a girl in a class to go for chalk is $^{3}/_{8}$. Find the number of boys if there are 56 pupils in the class.

20. A lorry carries 243 crates of soda. If each crate container 24 bottles, how many bottles of soda does the lorry carry?

Section B

21. In a group of 42 tourists, 20 tourists visited Kidepo National Park (K), p visited Lake Mburo National Park (M), **12** visited both National Parks while 4 tourists visited neither of the two National Parks.

(a) Complete the Venn diagram below using the above information. **(2 marks)**



(b) How many tourists visited Lake Mburo National park? **(2 marks)**

(c) Find the number of tourists who visited only one park. **(1 mark)**

22. The table below shows Ms. Arinaitwe's shopping bill.

ITEM	PRICE	COST
2 Kg of meat	Sh.8000	Sh.....
1 ½ Kg of Rice	Sh.....	Sh.4800
..... Litres of oil	Sh. 2400 per litre	Sh.7200
	TOTAL EXPENDITURE	Sh.....

(a) Complete the table above. **(4 marks)**

(b) If she remained with sh. 7,000, how much money did she have at the beginning? **(1 mark)**

23. A book factory makes 87600 books in a day.

(a) How many books altogether does the factory make a week if it only works for 5 days every week? **(2 marks)**

(b) Calculate the number of dozen of books the factory makes every week. **(2 marks)**

(c) If each book costs sh.500, how much money does the factory get after selling all the books produced in a day? **(2 marks)**

24(a) Using a pair of compasses, a ruler and a pencil only, construct a triangle DEF where DE = 7cm, angle FDE = 90^{o} and DF = 8cm. **(4 marks)**

(b) Measure the length EF. **(1 mark)**

25. A tank is $^{5}/_{8}$ full of water. When 350 litres of water are added to the tank, the tank becomes $^{4}/_{5}$ full. How many litres does it contain when it is $^{3}/_{10}$ full? **(5 marks)**

26(a) If m = 7, n = 5 and p = 6, evaluate $\frac{m^2 + n.}{p}$ **(2 marks)**

(b) Calvin is twice as old as Terry. How old is Terry if their total age is 24 years? **(2 marks)**

27. A bus traveled for 3 hours at a constant speed of 60km/hr and broke down. The repairs took 30 minutes then the bus continued with its journey at a speed of 90 Km/hr for 1 ½ hours. Find its average speed for the whole journey. **(6 marks)**

28. The table below shows the marks scored by the pupils in Mid Term III exams. Use it to answer the questions that follow.

Marks scored	85	70	80	75
Number of pupils	2	3	1	4

(a) How many pupils did the exam? **(2 marks)**

(b) What was their modal mark? **(1 mark)**

(c) Work out their average mark. **(3 marks)**

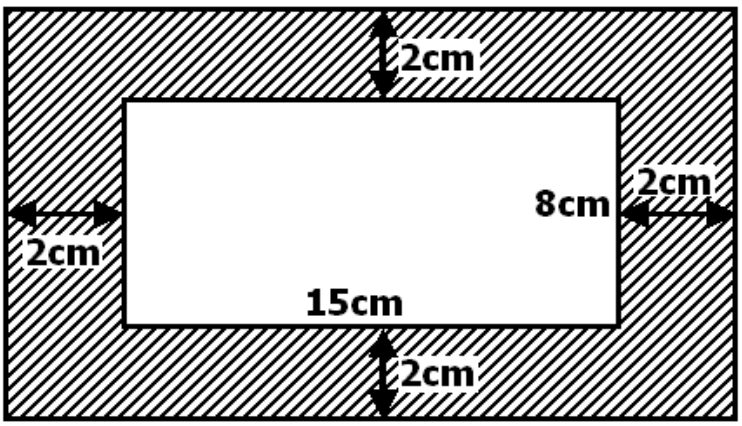
29. Given the digits; 4 , 0 , 3 and 9.

(a) Form the largest number using all the digits. **(1 mark)**

(b) Write down the smallest number formed by all the above digits. **(1 mark)**

(c) What is the difference between the biggest and the smallest number? **(2 marks)**

30. Study the diagram below and use it to answer the questions about it.



(a) Find the area of the inner rectangle. **(1 mark)**

(b) Work out the area of the outer rectangle. **(3 marks)**

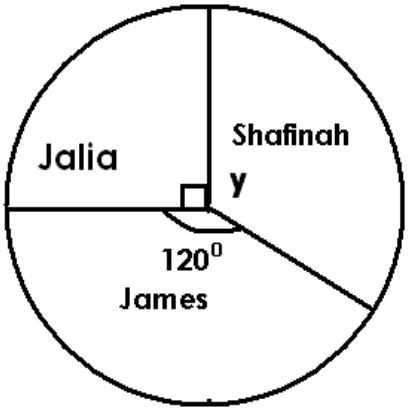
(c) Calculate the area of the shaded part. **(1 mark)**

31. In a school, two bells are used. One rings every after 40 minutes and another rings every after 50 minutes.

(a) After how many minutes will the two bells ring together? **(2 marks)**

(b) If the two bells ring together at 7:00a.m, at what time will the two bells ring together again? **(2 marks)**

32. The pie chart below shows how a certain amount of money was shared among Jalia, James and Shafinah. Use it to answer the questions that follow.



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

(b) If Shafinah got sh.75,000, how much money did they share altogether? **(2 marks)**

(c) Find the amount Jalia got. **(1 mark)**

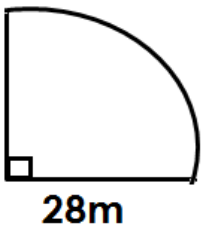
PRIMARY SEVEN REVISION WORK
MATHEMATICS – SET TEN

Name: _____ **Stream:** _____

1. Workout: $^{-}3 + {}^{+}5$

2. Find the value of 3 in the number 147.239

3. Calculate the total distance around the quadrant below.



4. Given that m2 = 144, find the value of $2m+m^{o}$.

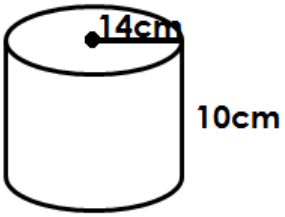
5. Solve the inequality: $4x + 3 < 11$

6. What angle does the minute hand of the clock cover in 36 minutes?

7. Find the exterior angle of a regular nonagon.

8. Two bells ring at intervals of 40 minutes and 50 minutes respectively. If they first ring together at 9:00am, after how long will they ring together again?

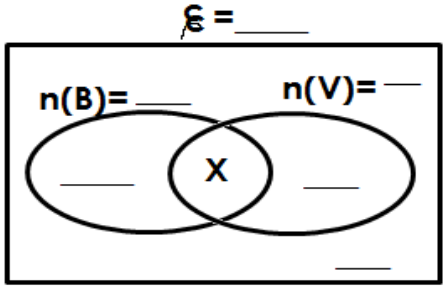
9. Calculate the volume of the cylinder below.



10. Express 0.1666… as a common fraction.

11. In a class of 45 pupils, 23 enjoy playing Basketball (B), 28 enjoy playing volleyball (V) and X pupils enjoy playing both basketball and volleyball, while 2 pupils enjoy neither.

a) Complete the Venn diagram below correctly.

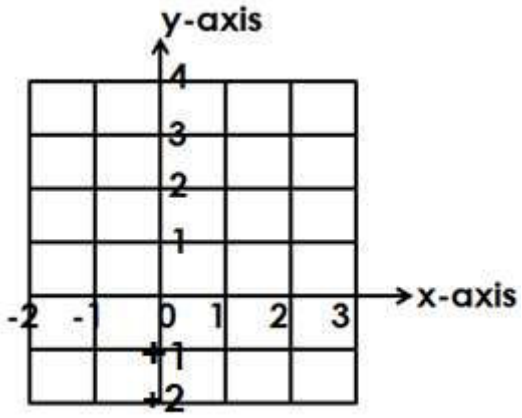


b) How many pupils enjoy playing both games?

c) How many pupils enjoy playing only one game?

12. a) Plot the following pairs of co-ordinates on a Cartesian grid below.

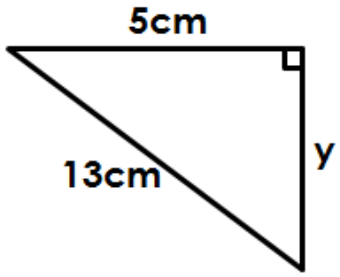
A(1,3) B(-2, -1), C(3, -1)



b) Join Points A to B, B to C and C to A to form geometrical shape and name it.

c) Find the area of the shape formed.

13. a) Calculate the value of y in the figure below.



b) Find the perimeter of the figure.

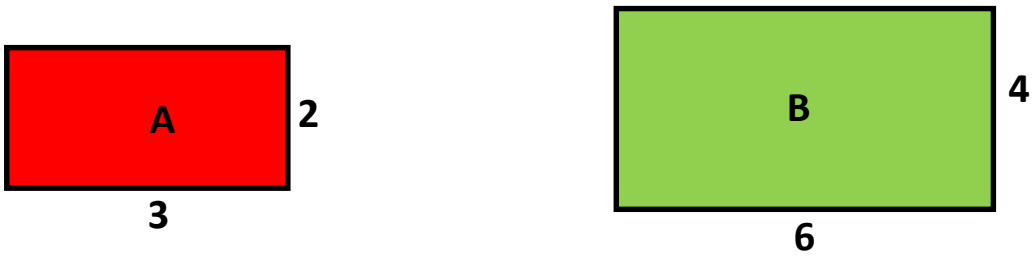
-END-

LINEAR SCALE FACTOR, AREA SCALE FACTOR, AND VOLUME SCALE FACTOR.

Linear scale factor (L.S.F)

Two plane figures or two solids are called similar if all corresponding angles are equal and if the ratio of any two corresponding lengths is constant.

The constant is called the linear scale factor. The linear scale factor is the ratio of any two corresponding lengths of similar figures.



A and B are two similar figures. The lengths of sides of figure B are twice the length of the corresponding sides of figure A.

$\therefore$ L.S.F = $\frac{4}{3} = \frac{2}{1} = 2$

Area Scale factor (A.S.F)

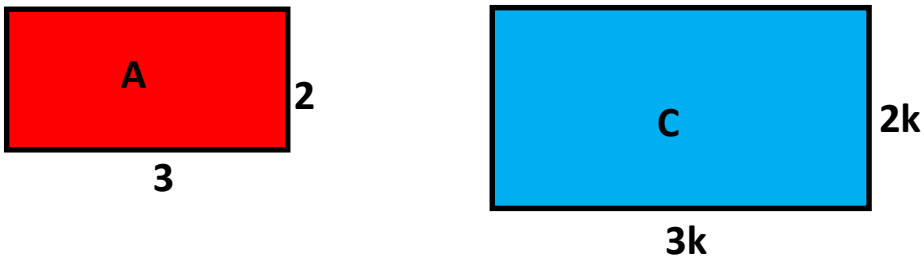
Area of A = 2x3 = 6 square units

Area of B = 6x4 = 24 square units

Ratio of their areas = 24:6 = 2^2

This is linear scale factor squared.

Let us consider rectangle A and similar rectangle C.



L.S.F = $\frac{3k}{3} = \frac{k}{1}$ = k

Area scale factor = $\frac{3k \times 2k}{3 \times 2} = k^2$

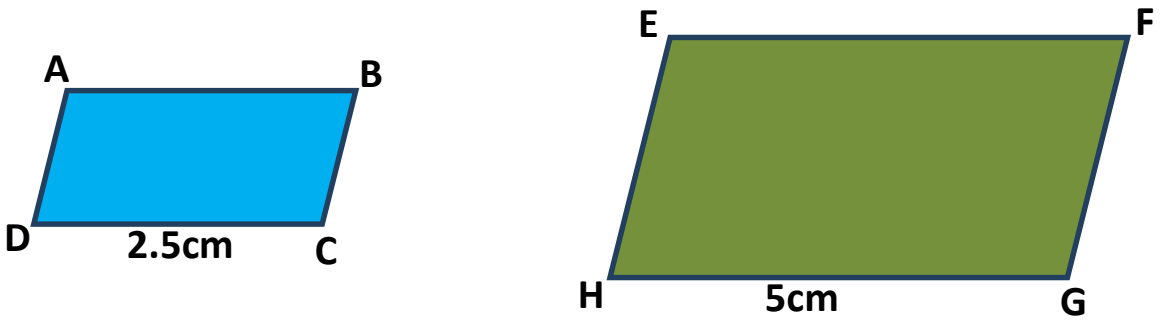
Note: if the L.S.F of two similar figures is k, then the area scale factor is k^2.

This rule applies to all similar figures.

In each of the following three examples, the two figures are similar.

Example:1

Area of parallelogram ABCD is 5.5cm^2. Find the area of EFGH



Solution:

L.S.F = $\frac{HG}{DC} = \frac{5}{2.5} = \frac{2}{1} = 2$

A.S.F = $(L.S.F)^2 = (2)^2 = 4$

Area of EFGH = 4 x Area of ABCD

= 4 x 5.5

=22cm^2

Example:2

A circle x has area of 12.0cm^2. Find the area of circle y with

i) three times this radius

ii) half this radius

Solution:

i) L.S.F = $\frac{3}{1} = 3$

Area scale factor = $(3)^2 = 9$

Area of circle Y = 9 x 12.0 = 108cm^2

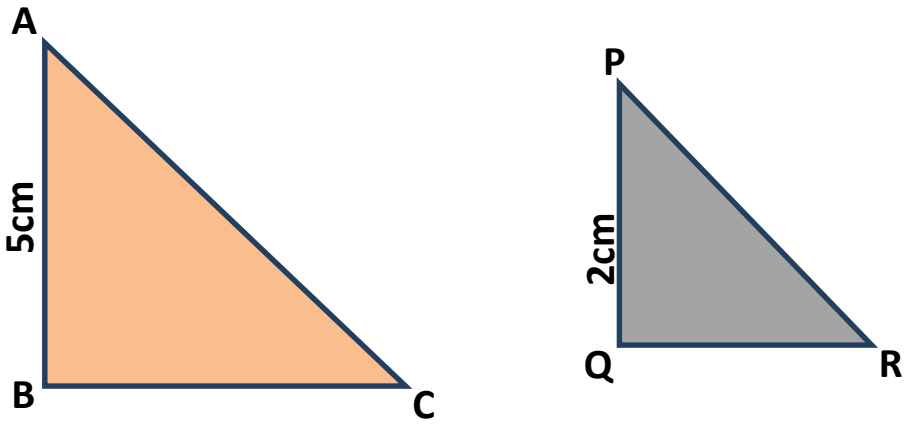
ii) L.S.F = $\frac{1}{2}/_1 = \frac{1}{2}$

Area scale factor is $\left(\frac{1}{2}\right)^2 = \frac{1}{4}$

Area of Y = $\frac{1}{4}$ x 12 = 3cm^2

Example:3

Find the area of the triangle ABC, Given the area of the triangle ABC = 150cm^2



Area scale factor = (L.S.F)^2 = $\left(\frac{2}{5}\right)^2$

Area of PQR = $\left(\frac{4}{25}\right)^2$ x 150

=24cm^2

<u>Map scales</u>

Any shape on the map is similar to the actual shape on the ground. The scale of the map is the ratio of corresponding lengths (i.e. it is the linear scale factor).

A scale factor of 1:50,000 means 1 unit on the map is equivalent to 50,000 units on the ground.

L.S.F $\left(\frac{map}{ground}\right) = \frac{1}{50,000}$

Area scale factor = $\left(\frac{1}{50,000}\right)^2$

$\frac{Area\ on\ map}{Area\ on\ ground}$ = $(scale)^2$ = $\left(\frac{1}{50,000}\right)^2$

Hence area of 1cm^2 on map represents an area of 50,000 x 50,000cm^2 on the ground.

$1cm^2 = 50,000 \times 50,000cm^2$

$= 0.5 \times 0.5km^2$

$= 0.25km^2$

Example:

The scale on a map is 1:100,000. If the area of an island on the map is $200cm^2$

i) What is its actual area?

ii) What is its actual area on a map whose scale is 1:50,000?

i) Scale 1:100,000

1cm:100,000cm

$1cm:1km^2$

Area scale factor = $1cm^2 = 1km^2$

$200cm^2 = 200 \times 1km^2$

$= 200km^2$

ii) Scale = 1:50,000

1cm: 50,000

Area scale factor $1cm^2$:(50,000)

$1cm^2 = 0.25km^2$

Let the area on the map be y

$1cm^2$ rep $0.25km^2$

y rep $200km^2$ (from (i) above)

Cross multiply

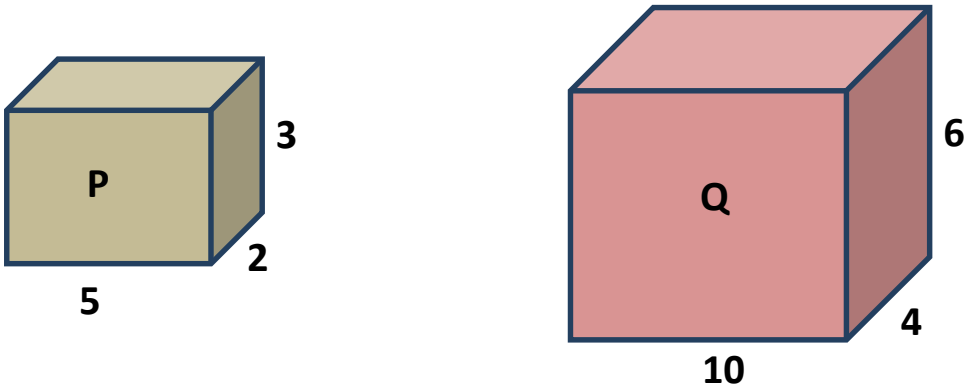
$y \times 0.25km^2 = 1cm^2 \times 200km^2$

$y = \frac{1cm^2 \times 200km^2}{0.25km^2}$

$y = 800cm^2$

Volume scale factor

Consider two similar cuboids P and Q.



L.S.F = $\frac{4}{2} = \frac{2}{1} = 2$

A.S.F = $\frac{4\times6}{2\times3} = 2 \times 2 = (2)^2 = 4$

This is true for each corresponding faces.

Volume scale factor (V.S.F) = $\frac{10\times4\times6}{5\times2\times3}$

= 2x2x2 = $(2)^3$ = 8

∴ V.S.F = $(L.S.F)^3$

In general, if L.S.F of two similar solids is K, then the V.S.F is K^3

Example:

Two similar cylinders are such that the height of the larger one is three times that of the smaller one. The smaller one has

surface area of 27cm^2 and volume 6cm^3.
What are the area and volume of the larger one?

Solution:

L.S.F = 3
A.S.F = $(3)^2$ = 9
V.S.F = $(3)^3$ = 27
Area of the larger one = 9 x Area of smaller one
Area of the larger one = 9 x 27 = 243cm^2
Volume of larger one = 27 x volume of small one
= 27 x 6 = 162cm^3

Example:

Two beakers of similar shapes hold $\frac{1}{4}$ litre and 2 litres respectively.
i) The smaller is 4cm high. What is the height of the larger one?
ii) If the Larger one has surface area of 400cm^2, what is the area of the smaller one?

Solution:

i) The volumes are 2 litres and $\frac{1}{4}$ litres

V.S.F = $\frac{2}{1/4}$ = 8 = $(2)^3$

L.S.F = $\sqrt[3]{V.S.F}$ = $\sqrt[3]{2^3} = 2$

Height of the larger one is 4 x 2 = 8cm.

ii) A.S.F = $(L.S.F)^2 = 2^2 = 4$

Area 0f small one = $\frac{400}{4}$ = $100cm^2$

Exercise:

1. A 1-litre beaker is 15cm high. Find the capacity of a 7.5cm high similar beaker.
2. Two similar rectangular cartons have bases 10cm long and 30cm. The smaller has volume $1200cm^3$. Find the volume of the larger one.
3. The volume of two cubes are $12.5cm^3$ and $100cm^3$. Find their
   i) Linear ratio.
   ii) Area ratio.
4. Two triangles whose bases are 7.5cm and 2.5cm are similar. What is the area of the smaller triangle if the larger one has area $81cm^2$
5. A model of an aero plane constructed to a scale of 1:600 is 56cm long. What is the length of the original aero plane?
6. Two similar solids have linear scale factor 3. If the larger one has a surface area of $36cm^2$ and volume of $12cm^3$, what are the surface area and volume of the other?
7. On a map of scale 1:200 000, a town is represented by an area of $4cm^2$. Calculate in km^2 the area covered by the town on ground?

8. The photograph of a house actually 8m high is 10cm in height.
   a)The front door of the house is 2.4m high. How high is that door on the photograph?
   b) If the area of a window on the photograph is $1.4cm^2$, what is the area of the actual window? (Give your answer to the nearest $0.1m^2$)
9. A scale model of a ship is one two-hundredth as long as the ship itself.
   i) Find the height of the mast and the area of the deck of the ship if the height of the mast and the deck area of the model are 10cm and $900cm^2$ respectively
   ii) If the volume of the hold in the ship is $1600m^3$, find the volume of the hold in mm^3, in the model.

Stay Home

Stay Safe

PRIMARY LEAVING SPECIAL MOCK EXAMINATION, *2020*
PRIMARY SEVEN
MATHEMATICS
Time allowed: 2 hours 30 minutes

NAME: _____

INDEX NUMBER | | | | | | | | | |

EMIS NO: _____ **SIGNATURE:** _____

Read the following instructions carefully.

1. This paper has **two** Sections: **A** and **B**.
2. Section **A** has 20 answer questions (40 marks)
3. Section **B** has 12 questions (60 marks)
4. Answer **ALL** questions. Answers to both sections must be written in the spaces provided.
5. All answers must be written using a blue or black ballpoint pen or ink Diagrams should be drawn in pencil.
6. Unnecessary alteration of work may lead to loss of marks.
7. Any handwriting that cannot be easily read may lead to loss of marks.
8. Do not fill anything in the box indicated for examiner's use only.

FOR EXAMINERS USE ONLY		
QN. NO.	MARK	SIGN
1 – 10		
11 – 20		
21 – 22		
23 – 24		
25 – 26		
27 – 28		
29 – 30		
31 – 32		
TOTAL		

"Success is for those who work hard."

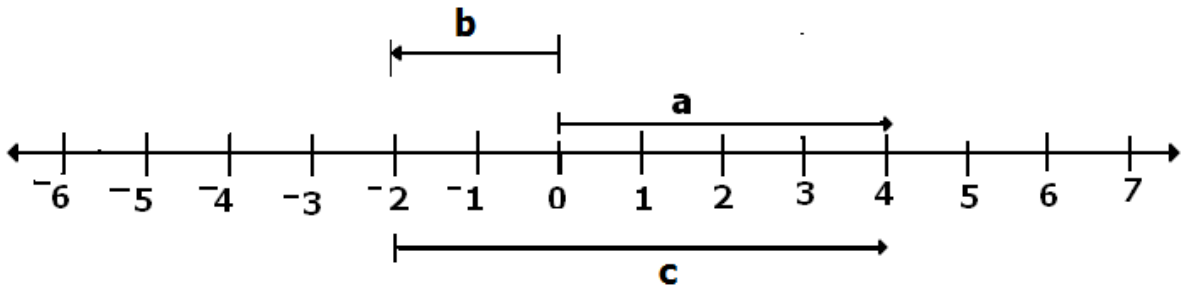
SECTION A: (40 Marks)

1. Work out 13 + 64.

2. Write "fifty-three thousand thirteen" in figures.

3. Simplify: 2ax – 2a + ax + a.

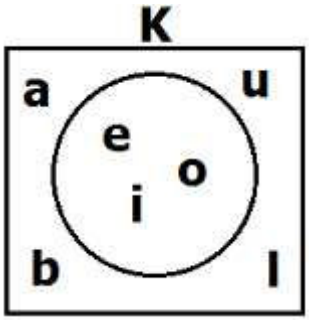
4. Write down the mathematical statement represented on the number line below.



5. Express 25kg as a percentage of a tone.

6. Find the value of 7 and the place vale of 3 in the numeral 3070.

7. Use the Venn diagram below to find KUL.



8. Using a protractor, draw an angle of 100o in the space provided below.

9. Convert 1225 hrs to a 12 hour clock system.

10. Complete the additional table in base five carefully.

+	0	1	2	3
2	2	3	4	_____
3	3	4	10	_____

11. Write 8.7 in standard form

12. In a class of 30 pupils, 18 are boys and the rest are girls. Find the probability of picking a girl to be the class monitor.

13. Calculate the interior angle sum of a regular hexagon.

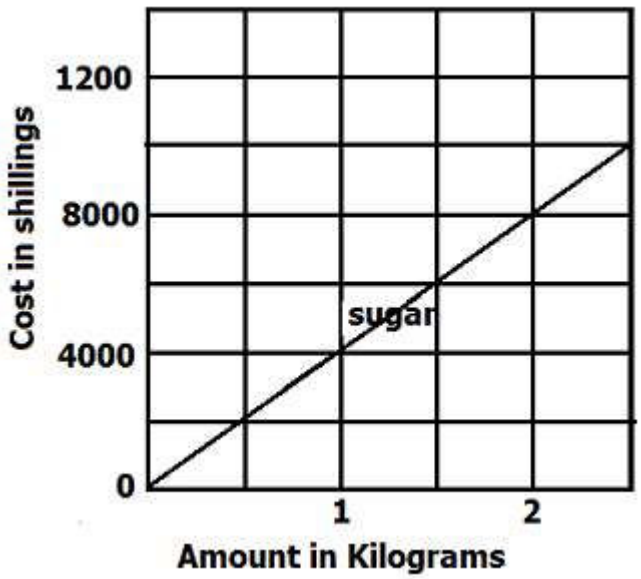
14. Divide: 1 ½ ÷ ¾

15. A tray of eggs costs shs. 9,500. If a trader sold it at loss of shs. 1,500, at what price did he sell it?

16. Given that a = 55 and b = 45. Work out the value of (a + b) (a – b).

17. With our dividing, show that 453 is divisible by 3.

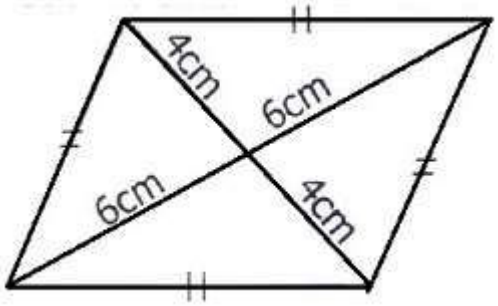
18. The line graph below shows the cost of sugar.



Calculate the cost of 1½ kgs of sugar

19. Simplify: $\frac{1.82 + 0.18}{0.25}$

20. Work out the area of the rhombus below.

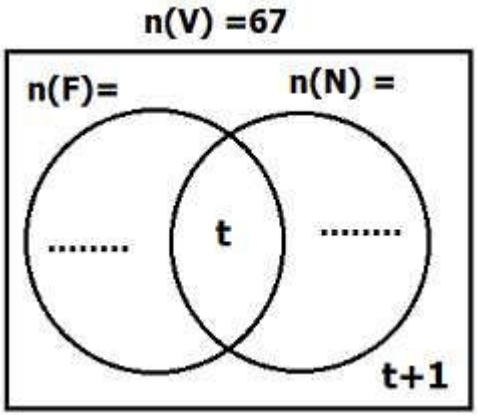


Section B (60 marks)

21. Two bells ring at intervals of 30 minutes and 40 minutes for both lower and upper primary respectively. How many lessons will each class have had by the time all the bells ring together?

22. In a team of 67 players, all of them play volley ball (V), 38 play football (F), 19 play netball only, some players (t) play all the three games while (t + 1) play volley ball only.

(a) Use the above information to complete the Venn diagram below.



(b) Find the value of t.

(c) How many players do not play football?

23. The exchange rates at the forex bureau are given as shown below;

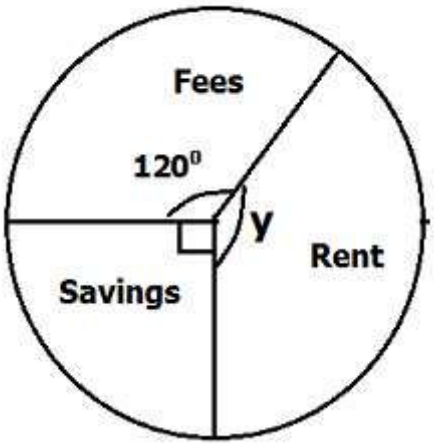
(i) Ksh. 1costs Ug shs. 37

(ii) US $ 1 costs Ug shs. 3700

(a) If the cost of a calculator is K shs. 650, how much would this be in Uganda shillings?

(b) Convert K shs. 8,000 to US dollars.

24. The pie – chart below represents a man's monthly expenditure.



(a) Find the value of y.

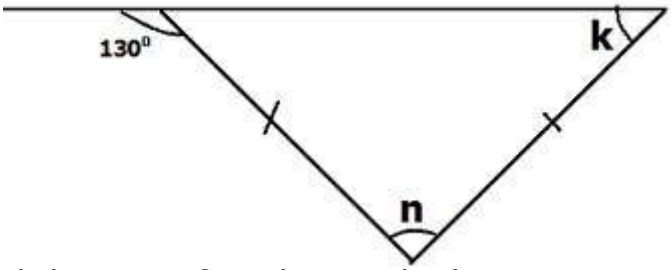
(b) If he spends shs. 30,000 more on fees than he saves, how much does he earn per month?

25. The area of a circular flower garden is $154m^2$.

(a) How long is its diameter?

(b) If the garden is to be fenced with poles planted at intervals of 2m apart, how many poles are needed to fence the garden?

26. **Use the figure below to answer the questions that follow.**



(a) Find the size of angles marked:

(i) k

(ii) n

(b) Work out the complement of $(p + 20)^{\circ}$

27. John deposited shs. 500,000 in a commercial bank which offers an interest rate of 10% per annum. Calculate the amount of money John earned after a period of 6 months.

28. Anifah scored 30, 40, 30, 50, 30 and 50 in a series of tests.

(a) Find her modal mark.

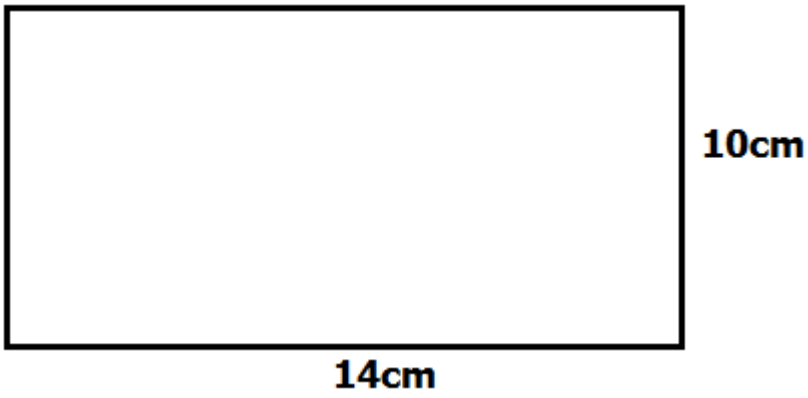
(b) Work out her median mark.

(c) Calculate the mean of X, (2X + 3) and 15.

29(a) Solve: $2m - (2+m) \geq 6$

(b) A son is only half the age of the father now, their total age is 60 years. How old will the son be in 10 years time from now?

30. The rectangular sheet of metal shown below is folded to form a hollow cylinder.



(a) Find the radius of the cylinder formed.

(b) Calculate the capacity of the cylinder when full of cooking oil.

31(a) A bus left school at 9:00 a.m. and arrived in town at 11:30 a.m. traveling at a steady speed of 80km/hr.

(a) Work out the distance traveled.

(b) If the bus returning using the same route for only 1½ hours, calculate it's average speed for the whole journey.

32. A school office is 60 km West of the staff room and the main hall is 80 km on a bearing of 180° from the staff room.

(a) Draw an accurate diagram to show the above information.

(b) Find the shortest distance between the school office and the main hall

END