# SHEEMA DISTRICT EXAMINATIONS BOARD

## PRIMARY LEAVING MOCK EXAMINATIONS 2023

## MATHEMATICS

## TIME ALLOWED 2 HOURS 30 MINUTES

INDEX NO.

CANDIDATE'S NAME. ABDUESSONG... RICHARD

CANDIDATE'S SIGNATURE.

SCHOOL NAME.... VISIONARY P/SCH

**Read the following instructions carefully**

1. This paper is made up of two sections A & B

2. Sections A has 20 questions (40 marks)

3. Section B has 12 questions (60 marks)

4. Attempt all questions. All working and answers for both sections A and B must be shown in the space provided. No pieces of paper must be provided for rough work.

5. All answers must be written using a blue or black ball point pen or ink and **Not** pencil. Only diagrams should be drawn in pencil.

6. Unnecessary alteration of work will lead to loss of marks

7. Any handwriting that cannot easily be read may lead to loss of marks.

8. Do not fill anything in the box indicated "for examiner's use only" and those inside the question paper.

1. Fill in the missing numbers

```
      5   4
+    2 6  3
   _____
    7   7   8 1
```

2. Write in figures fifty nine thousand, forty.

Fiftynine thousand = 49,000
forty = 40
= 49,040

fiftynine thousand = 59,000 ✓
forty = 40 ✓  B₃
59,040
= 59,040

3. Write CXCIX in Hindu Arabic numerals.

C = 100
XC = 90 ✓
IX = 9
CXCIX = 199   B₂

4. If a = -2, b = 3, Evaluate b²-4a

b²-4a = (b×b) - (4×a)  = 9-18
= (3×3) - (4× -2)
= 9 - -8   M₁  = 17 ✓ A₁

5. If set K = 4 elements, How many subsets are in set K?

No. of subsets = 2ⁿ ✓   M₁
= 2⁴ ✓
= 2×2×2×2 ✓
= 16 subsets ✓ A₁

6. The Clock face below shows time in the afternoon



Write the time shown in 24hr clock.

```
  Hrs   mins
   3    50 ✓ B₁
+ 12    00 ✓
  _____
  15    50hrs ✓ B₁
```
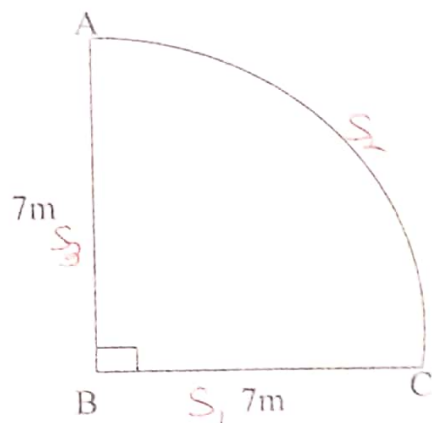
2

7. Write the place value of 3 in $235_{six}$

$235_{six}$ ✓

↳ 3 sixes B₂

8. A car uses 7 litres of petrol to cover a distance of 28km. How many litres of petrol can it use to cover 64km.
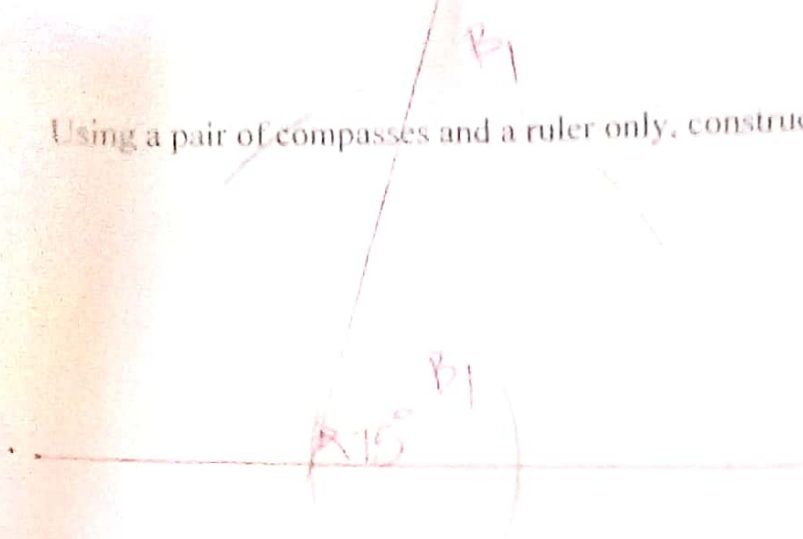
28 km need 7 litres

1 km needs $\left(\frac{7}{28}\right)$ litres

64 km need $\left(\frac{7}{28} \times 64\right)$ litres M1

$= 16$ litres ✓ A1

9. Find the perimeter of the figure below



$P = S_1 + S_2 + S_3$

$S_1 = 7m$

$S_2 = \frac{1}{4}\pi d$

$= \frac{1}{4} \times \frac{22}{7} \times 14m$ ✓ m

$= 11m$

$S_3 = 7m$

$P = 7m + 11m + 7m$ ✓

$P = 18m + 7m$ ✓

$P = 25m$ ✓ A1

3

10. Using a pair of compasses and a ruler only, construct an angle of 75°

$B_1$

$A75°$ $B_1$

11. Given

N

$B_1$ for 50° on diagram or so...

N

$B_1$

N

50°

P

What is the bearing of P from N?

$= 9c°+9c°+5c°$

$= 18c°+5c°$

$= 23c°$ $B_1$

The bearing of P from N is 23c°

12. Find the next number in the sequence

1, 2, 10, 37, ___101___ $B_1$

11 +8 +27 +64 $B_1$

$B_1$ for Correct Pattern

$$\begin{array}{r} 37 \\ + 64 \\ \hline 101 \end{array}$$

4

13. The figure below is an isosceles triangle. Study it carefully and answer questions.
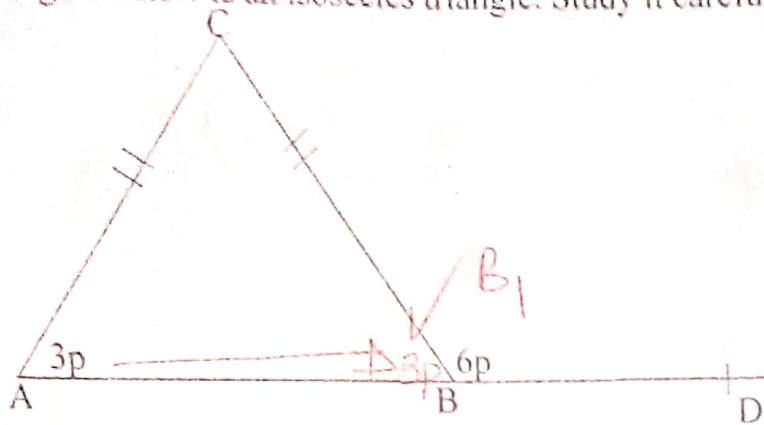


Find the value of P

$$3p + 6p = 180°$$
$$\frac{9p}{9} = \frac{180°}{9}$$
$$P = 20°$$

14. Solve the inequality
    $9 \leq -3(K-1)$

$$9 \leq -3K + 3$$
$$9-3 \leq -3K + 3-3$$
$$6 \leq -3K$$
$$\frac{6}{-3} \geq \frac{-3K}{-3}$$
$$-2 \geq k$$
$$k \leq -2$$

15. Express 0.7272..........as common fraction in its simplest form.

let x be 0.7272
$$x = 0.7272 \cdots (i)$$
$$100 \times x = 0.7272 \times 100$$
$$100x = 72.7272 \cdots (ii)$$

(ii) − (i)
$$100x = 72.7272$$
$$- x = 0.7272$$
$$99x = 72.0000$$
$$\frac{99x}{99} = \frac{72}{99}$$

$$x = \frac{72}{99} = \frac{8}{11}$$

$$x = \frac{8}{11}$$

16. A farmer deposited shs. 90,000 in a bank that offers an interest rate of 2 ½ % per year for 8 months. Find the simple interest a farmer got in 8 months.

$$SI = PRT$$
$$= Sh. 90,000 \times 2.5\% \times \frac{8}{12m}$$
$$= Sh. 90,000 \times 5\% \times \frac{8}{12}$$
$$= 90,000 \times \frac{5}{200} \times \frac{8}{12}$$

$$= Sh. 300 \times 5$$
$$= Sh. 1500$$

17. Find the median of 2,4,6,8,7,3
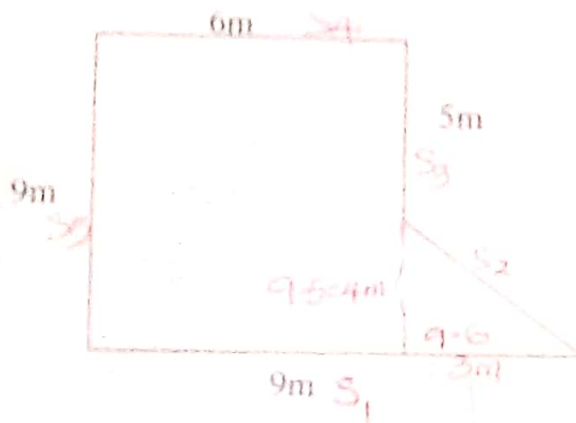
median = 2,3,4,6,7,8

$$= \frac{4+6}{2}$$
$$= \frac{10^5}{2}$$
Median = 5

18. John is the fifth person on either of the two sides of the line. How many pupils in the line?

$= 2p - 1$

$= (2 \times 5) - 1$  M

$= 10 - 1$

$= 9 \text{ pupils}$  A

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



Calculate its perimeter

$P = S_1 + S_2 + S_3 + S_4 + S_5$

$25 = c^2$

$P = 25m + 9m$

$P = 9m + 5m + 5m + 6m + 9m$

$P = 34m$  B

20. What number has been expanded to give $(6 \times 10^3) + (4 \times 10^1) + (6 \times 10^{-2})$

$= (6 \times 1000) + (4 \times 10) + (6 \times 0.01)$  M

$= 6000 + 40 + 0.06$

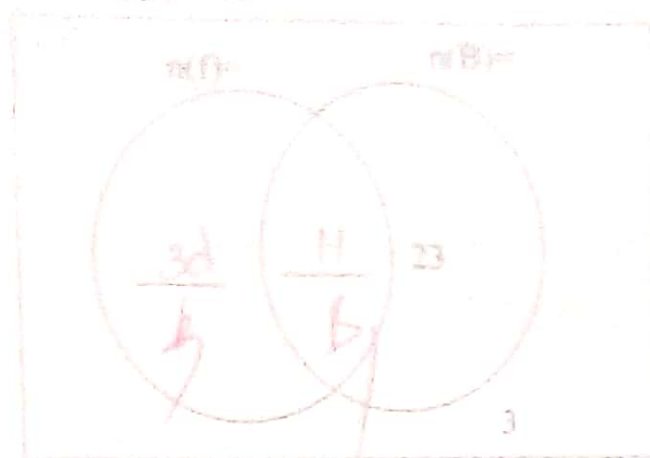$\begin{array}{r} 6000.00 \\ 0.04 + 0.00 \\ + 0000.06 \\ \hline 6040.06 \end{array}$  A

21. In a group of 49, 34 eat beef (B), 14 eat fish (F) only, some people eat both dishes while 3 people eat other dishes.

(a) Represent the above information on the venn diagram. (2mks)

n(ξ) = 49



(b) Find the value of d (2mks)

$3d + 34 + 3 = 49$

$3d + 37 = 49$

$3d + 37 - 37 = 49 - 37$

$3d = 12$

$\frac{3}{3}d = \frac{12}{3}$

$d = 4$

(c) Find the probability of picking at random a person who eats one dish.

$Prob = \frac{n(E)}{SS}$

$SS = 49$

$n(E) = d + 23$

$= (3 \times 4) + 23$

$= 12 + 23$

$= 35$

$\frac{35}{49}$

22. The mean of 2p+5, p+4, 3p+1 and 12 is 19.

(a) Find the value of P (3mks)

$Mean = \frac{2p + 5 + p + 4 + 3p + 1 + 12}{4}$

$19 = \frac{6p + 22}{4}$

$4 \times 19 = \frac{6p + 22 \times 4}{4}$

$76 = 6p + 22$

$76 - 22 = 6p + 22 - 22$

$54 = 6p$

$\frac{54}{6} = \frac{6p}{6}$

$9 = P$

$P = 9$

(b) Work out their median (2mks)
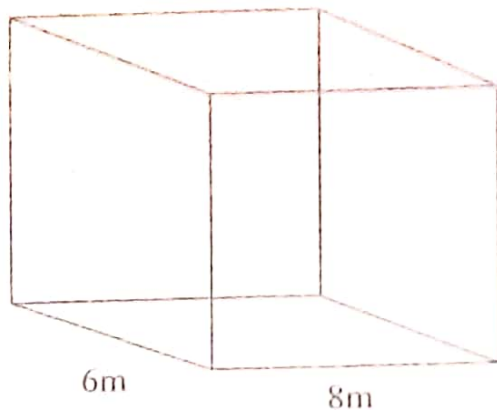
$-2p+5, P+4, 3p+1, 17$  $= 12, 8, 29, 28$

$(s)$  $= (2 \times 9)+5, 9+4, 3 \times 9+1, 12$

$= 18+5, 13, 27+1, 12$

$= 23, 13, 28, 12$

23. The sum of the lengths of all edges of the prism below is 76cm.



6m    8m    L

(a) Find the length of edge L        (2mks)

(b) Calculate its volume (2mks)

24. Study and complete the table below (6mks)

| Item | Quantity | Unity cost | Amount |
|------|----------|-----------|--------|
| Beans | 3kg | sh 4800 per kg | sh. 14400 |
| Rice | ½ kg | sh 5000 per kg | sh 2500 |
| Milk | 250ml | sh 3000 per litre | sh 750 |
| Biscuits | 2pkts | sh 6000 per packets | sh 12000 |
| | Total exp | | sh 29650 |

| Beans | Rice | Milk | | |
|-------|------|------|---|---|
| 4800 | sh 2500 | 250 × sh 3000 | | |

$sh. 14400$

$= sh. 4800$    $= ½$    $= 9750$

25  Using a ruler, a pencil and a pair of compasses only, construct a triangle TVS where angle TVS=45°, VS = 6cm and angle VST= 60°.
   (a) Drop a perpendicular from point T to meet VS at K (4mks)

A sketch



Accurate diagram
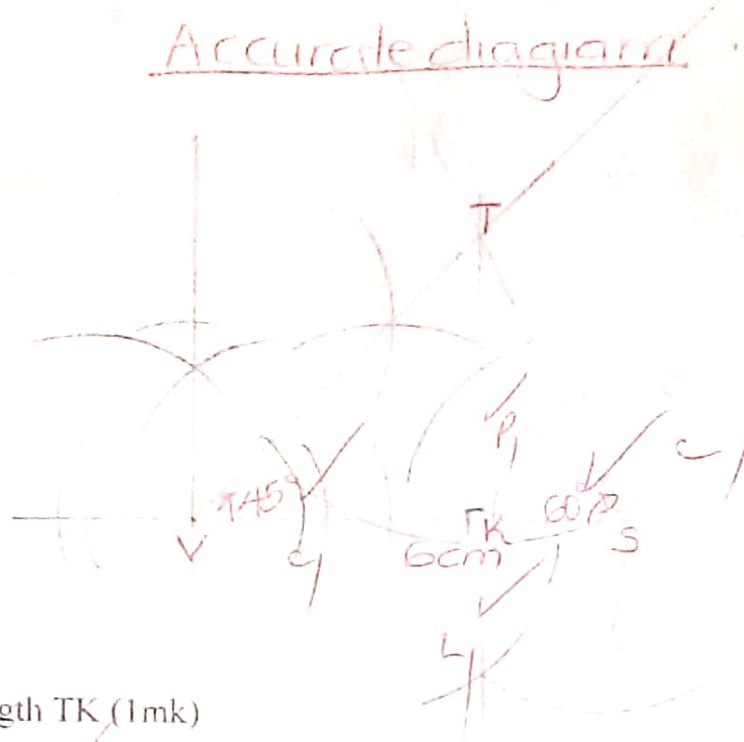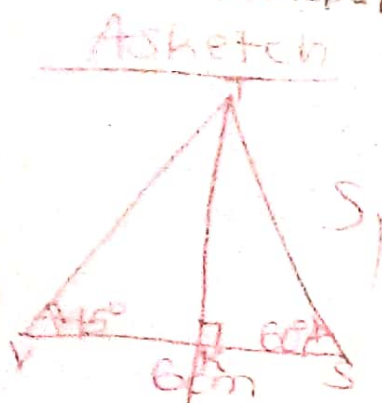


(b) Measure length TK (1mk)

$TK = 3.9cm$ / B

26.  At Nyakanyinya P/S, two bells are used one bell rings every after 40 minutes and another bell rings every after 30 minutes for upper and lower classes respectively.
   (a) After how long will the two bells ring together? (2mks)

| 2 | 40 | 30 | = 120 |
|---|----|----|-------|
| 2 | 20 | 15 | |
| 2 | 10 | 15 | |
| 3 | 5  | 15 | |
| 5 | 5  | 5  | |
|   | 1  | 1  | |

= 2×2×2×3×5
= 4×6×5
= 24×5

= 120 minutes

(b) If they are first rung at 11:00am, at what time will the two bells ring together again? (2mks)

$1hr = 60 \text{ minutes}$

$= \dfrac{120 \text{ minutes}}{60 \text{ minutes}}$

$= 2hrs$ B₁

| hrs | mins | |
|---|---|---|
| 11 | 00 | 1300 |
| + 2 | 00 | -1200 |
| 13 | 00 | 1:00 |

At 1.00pm B₁

27. (a) Simplify: $\dfrac{0.12 \times 5.4}{0.03 \times 0.6}$ (3mks)

$= \left(\dfrac{12}{100} \times \dfrac{54}{10}\right) \div \left(\dfrac{3}{100} \times \dfrac{6}{10}\right)$ M₁

$= \left(\dfrac{4}{100} \times \dfrac{54}{10}\right) \times \dfrac{100}{3} \times \dfrac{10}{6}$ M₁

$= 4 \times 9$

$= 36$ A₁ = 5mks

(b) Work out: $\dfrac{2}{3}$ of $\dfrac{3}{4} - \dfrac{1}{3}$ (2mks)

$= \dfrac{2}{3} \times \dfrac{3}{4} - \dfrac{1}{3} = \dfrac{3-2}{6}$ M₁

$= \dfrac{1}{2} - \dfrac{1}{3}$ $= \dfrac{1}{6}$ A₁

28. The taxi driver left Kabwohe to Mbarara at 10:30am driving at a speed of 80km/hr. The driver reached Mbarara at 2:00pm.

(a) Calculate the time taken by the driver to reach Mbarara. (2mks)

| hrs | mins |
|---|---|
| 2 | 00 |
| + 12 | 00 |
| 14 | 00 hrs |

| 1360 |
|---|
| 1430 |
| 10 30 |
| 0330 |

B₁

= 3hrs 30 minutes

(b) Find the distance between Kabwohe and Mbarara (2mks)

$D = S \times T$

$= 80 km/hr \times 3\tfrac{1}{2} hrs$ M₁

$= \dfrac{80 \, km \times 3\tfrac{1}{2} hr}{1 hr}$

$= 80 \, km \times \dfrac{7}{2}$

$D = 280 \, km$ A₁

10

29. Teacher Alson is thrice as old as her daughter. In 5 five years, the ratio of Alson's age to his daughter will be 7:3 respectively.

(a) How Old is her daughter now? (3mks)

| | Now | In 5yrs | ratio |
|---|---|---|---|
| teacher | 3p | 3p+5 | 7 |
| daughter | P | P+5 | 3 |

$$\frac{3p+5}{p+5} = \frac{7}{3} \quad M1$$

$3(3p+5) = 7(p+5)$

$9p+15 = 7p+35$

$9p - 7p + 15 = 7p + 35 \checkmark$

$2p + 15 = 35$

$2p + 15 - 15 = 35 - 15 \quad M1$

$\frac{2p}{2} = \frac{20}{2}$

$p = 10$

$daughter = 10 \ years \quad \checkmark A1$

(b) How old will the teacher be then? (2mks)
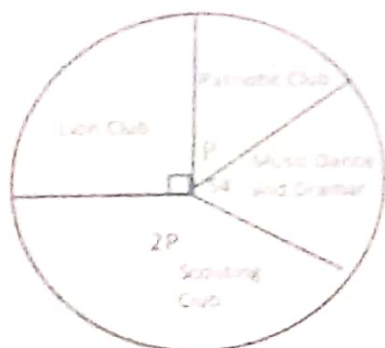
$= 3p+5 \quad \checkmark M1$

$= (3 \times 10) + 5$

$= 30 + 5$

$= 35 \ years \quad \checkmark M1$

30. The pie-chart below shows how pupils at Mbarara Junior school are distributed in various clubs in the school.



(a) There are 216 pupils in patriotic club. Find the total number of pupils in the school. (4mks)

$p + 2p + 54° + 90° = 360° \quad M1$

$3p + 144° = 360°$

$3p + 144° - 144° = 360° - 144°$

$\frac{3p}{3} = \frac{216°}{3}$

$P = 72° \quad \checkmark A1$

$= \frac{216 \times 360}{72}$

$= 3 \times 360°$

$216 = \frac{72}{360} \quad \checkmark M1$

$\frac{216 \times 360}{72}$

$= 1080 \ pupils \quad A1$

$$\begin{array}{r} 360° \\ \times\ 3 \\ \hline 1080 \end{array}$$

$$\begin{array}{r} 360 \\ 144 \\ \hline 216 \end{array}$$

(b) Express the number of pupils in the patriotic club as a percentage of the whole school. (1mk)

$$= \frac{72^{6}}{360} \times 100\% = $$

$$= 20\%$$

31. Jumbo, Tendo and Mainho contributed sh 24000, sh 36,000 and sh 60,000 respectively for a joint business which made a profit of shs 51,000 by the end of the business, they then agreed to separate and each of them starts his own and they each shared the total money according to their initial contributions. How much did each person get?

$$= Sh \ 24,000 : 36,000 : Sh \ 60,000$$
$$\frac{Sh \ 12000}{} \quad Sh \ 12000 \quad Sh \ 12000$$

$$= 2 : 3 : 5$$

Total ratio
$$= 2+3+5$$
$$= 10$$

1 share
sh 51,000
1/0
sh 5100 ×9

Jumbo
$2 \times sh \ 5100$
sh 10200
sh 24000
sh 10200
sh 34,200

Tendo
$3 \times sh \ 5100$
sh 15300
sh 36,000
sh 15,300
sh 51,300

Namho
$5 \times sh \ 5100$
sh 25500
sh 25500

sh 60,000
sh 25500
sh 85500

32. The sum of 4 consecutive odd numbers is 56. If the first number is (y+2)

(a) Find the value of y (2mks)

| 1st | 2nd | 3rd | 4th | sum |
|-----|-----|-----|-----|-----|
| y+2 | y+4 | y+6 | y+8 | 56 |

$y+2+y+4+y+6+y+8 = 56$
$= 56$
$4y+20 = 56$
$4y+20-20 = 56-20$
$\frac{4y}{4} = \frac{36}{4}$

$\frac{4y}{4} = \frac{36}{4}$

$y = 9$

(b) List the numbers. (4mks)

$= y+2, y+4, y+6, y+8,$
$= 9+2, 9+4, 9+6, 9+8$
$= 11, 13, 15, 17$

12