KAMPALA PRIMARY SCHOOLS'
SKYLINE EXAMINATIONS™

P.L.E. – 2023

Set 02

MATHEMATICS

Time Allowed: 2 hours 30 minutes

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

Candidate's Name:.....

Candidate's Signature: 0756765866 Johnson

School Name:.....

District Name:.....

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FOR EXAMINERS' USE ONLY

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. Attempt **ALL** questions. All answers to both Sections A and B must be written in the spaces provided.
5. All answers must be written using blue or black ball-point pen or ink. Only diagrams and graphs work may be done 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 boxes indicated for examiners' use only.

FOR EXAMINERS' USE ONLY		
Qn. No.	MARK	SIGN
1 – 4		
5 – 8		
9 – 12		
13 – 16		
17 – 20		
21 – 23		
24 – 26		
27 – 29		
30 – 32		
TOTAL		

SECTION A: 40 MARKS

Questions 1 to 20 carry **two** marks each.

1. Work out: $\frac{2}{3} - \frac{1}{2} =$

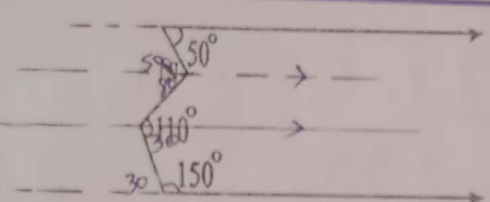
$\frac{2}{3} - \frac{1}{2} = \frac{4-3}{6}$

$= \frac{1}{6}$

2. Work out: $24 \div 8$

$\frac{24}{8} = 3$

3. In the diagram given below, find the value of N.



110
-30
80°

N = 80 + 50°
= 130°

4. Solve for K: $4(2K - 4) = 4K$

$4(2K-4) = 4K$

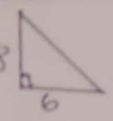
$8K - 16 = 4K$

$8K - 4K = 16$

$\frac{4K}{4} = \frac{16}{4}$

$K = 4$

5. Work out the distance around a rhombus whose lengths of the diagonals are 16cm and 12cm.



$\frac{16}{2} = 8$

$\frac{12}{2} = 6$

$a^2 + b^2 = c^2$

$6^2 + 8^2 = c^2$

$36 + 64 = c^2$

$\sqrt{100} = \sqrt{c^2}$

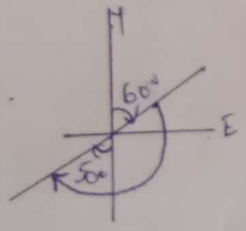
$10 = c$

Length = 10cm

4 × 10cm

= 40cm

6. Jane is facing N60°E. She turns clockwise to face the direction of S50°W. Through what angle does she turn?



90
-60
30°

30°
90°
+50°
170°

7. Subtract $(b^3 - a^3)$ from a^3 and b^3

$(a^3 + b^3) - (b^3 - a^3)$

$a^3 + b^3 - b^3 + a^3$

$a^3 + a^3 + b^3 - b^3$

$2a^3$

8. Write 9865 in scientific notation.

9865 ÷ 10

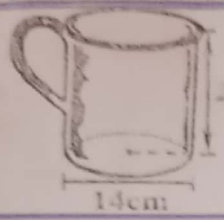
986.5 ÷ 10

98.65 ÷ 10

9.865

9.865×10^3

9. The diagram given below represents a cup which Mr. Muwonge uses at his home. Workout the surface area of the cup.



$A = \pi r^2$

$= \frac{22}{7} \times \frac{7}{1}cm \times \frac{7}{1}cm$

$= 154cm^2$

Surface area = base area × ~~Bottom~~

$154cm^2 \times 2$ ~~cm~~

308 cm

$2\frac{22}{7} \times r \times h$

$2 \times \frac{22}{7} \times 7cm \times 20$

$880cm^2$

$+308cm^2$

$1188cm^2$

$= 1188cm^2$

10. The mean age of 30 pupils is 12 years and the average age of the youngest 10 pupils is 10 years. Find the mean age of the remaining pupils.

Number	Mean	Sum
30	12 years	360 years
-10	10 years	-100 years
20		260 years

260 years

20

13 years

11. Muzinzi borrows Shs.50,000/= and has to pay an interest of 10% per month. Workout the total amount he will pay back after one year.

$I = P \times R \times T$

$= \frac{shs.50,000 \times 10 \times 1 \times 12}{100}$

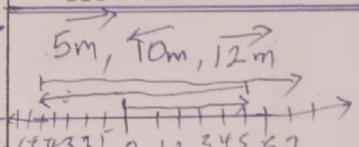
shs. 60,000

shs. 50,000

+ shs. 60,000

shs. 110,000

12. Kato walks 5 metres East then 10 metres West and again 12 metres East. How far is he from the original point?



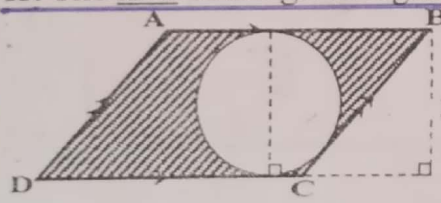
$+5 - 10 + 12$

$+17 - 10$

+7 metres

7 metres east

13. The area of the given figure **ABCD** below is $140cm^2$, find the length of **AB**.



$b \times h = 140cm^2$

$b \times 28cm = \frac{140cm^2}{28cm}$

$b = 50cm$

14. If a = 6, b = $^-1$ and C = $^-4$. Find the value of: $\frac{a^2b}{C}$

$\frac{a^2b^{-1}}{C^{-4}}$

$\frac{6^2 \times -1}{-4}$

$\frac{-36}{-4}$

9

15. Find the Roman numerals quotient of: CMLX and XLViii

CM → 900

LX → + 60

960

XL → 40

VIII → + 8

48

$\frac{960}{48}$

20

16. Three men Senjala, Odongo and Farjala contributed money to start a business. Senjala raised Shs.900,000/=. Odong contributed Two thirds of Senjala's share and then Farjala gave thrice as much as Odong. Find their initial capital for their business.

Senjala → shs. 900,000 → shs. 900,000

odongo → $\frac{2}{3} \times$ shs. $\frac{3}{1}$ 900,000 → shs. 600,000

farjala → $\frac{3}{1} \times \frac{2}{3}$ + shs. 900,000 → shs. 1800,000

shs. 1500,000

+ shs. 1800,000

shs. 3300,000

17. A lorry uses 4 litres of diesel to cover 30Km. How much fuel is needed for the same vehicle to cover a distance of 180Km?

4 → 30km
1 → 30km/4
(180km ÷ 30km/4) litres
(180/1 × 4/30) litres

24 litres

18. What is the number of proper subsets for: X = {1, 3, 5, 7}

Proper subsets = $2^n - 1$
$= 2^4 - 1$
$= (2+2+2+2) - 1$
$= 16 - 1$
$= 15$ proper subsets

19. Three bells ring at intervals of 25 minutes or 30 minutes or 40 minutes respectively. If they ring together at 7:30a.m. At what time will they ring together again?

5	25	30	40
2	5	6	8
	5	3	4

(5×2×5×4×3) minutes
(200×3) minutes
600 minutes
1hr = 60 minutes

(60 minutes / 60 minute) hour
10 hours

hours	minute
7	30
+10	00
17	30
−12	00
5	30

5:30pm

20. Trisha gave $^2/_3$ of her bread to her sister Atuhaire, $^1/_8$ of it to her brother Peter. She left 60gm for herself. Find the weight of the whole bread.

Atuhaire → 3/3
peter → 1/8
2/3 + 1/8 = (16+3)/24
= 19/24

left
24/24 − 19/24 = 5/24

60gm ÷ 5/24
(60/1 × 24/5) gms

288 grams

24
×12
48
+240
288

SECTION B: 60 MARKS

21. (a) Work out: $\frac{0.8 \times 1.08}{0.12 \times 0.4}$ (3 marks)

(8/10 × 108/100) ÷ (12/100 × 4/10)

$\frac{8^2}{10} \times \frac{\cancel{108}^{9}}{\cancel{100}} \times \frac{\cancel{100}}{\cancel{12}} \times \frac{\cancel{10}}{\cancel{4}}$

18

(b) Express 0.2444... as a common fraction. (2 marks)

Let 0.244 to be y
y = 0.244...
10 × y = 10 × 0.244...
10y = 2.44...
− y = 0.244...

9y/9 = 2.2/9

y = 2.2×10 / 9×10
= 22/90
y = 11/45

22. (a) A regular polygon has an interior angle which is thrice its outside angle. Workout the interior angle sum of this polygon in right angles. (3 marks)

Let its exterior angle be p

exterior	interior	total
p	3×p	180

p + 3p = 180

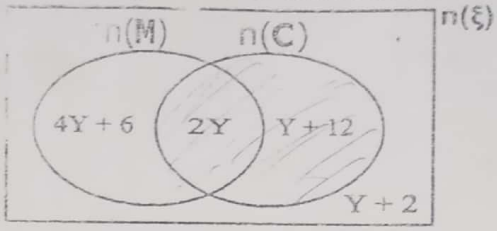
4p/4 = 180/4
p = 45°

Number of sides
360/45 = 8 sides

interior angle sum = 90(2n−4)
90(2×8−4)
90(16−4)
90×12
1080°

(b) What is the name of the polygon? Regular Octagon (2 marks)

23. The Venn diagram represents the number of people who attended a party and they were served with Chicken n(C) and Meat n(M).
Use the diagram to answer the questions that follow.



(a) Given that 28 people disliked Chicken, find the number of people who ate both Chicken and Meat. (3 marks)

$4y+6+y+2=28$
$4y+y+6+2=28$
$5y+8-8=28-8$
$5y=20$
$\frac{5y}{5}=\frac{20}{5}$
$y=4$

$2y$
$\downarrow$
4
$(2+4)$ people
8 people

universal
2
38
8
+ 6
52

(b) What is the probability of those people who ate only one type of food? (1 mark)

$4y+6$, $y+12$
$\downarrow$ $\downarrow$
4 4

$(4\times4)+6=16+6$
$4+12=16$

22
16
38

probability → $\frac{38}{52}$

24. Some tourists paid US$2 dollars for entrance in a wild life centre. If the first tourist got a receipt numbered 202704 and the last got 202803.

(a) How many tourists visited the wild life centre? (2 marks)

202803
−202704
99+1
100 tourists

(b) If every tourist paid the entrance fee. What was the total payment in Uganda shillings if each dollar cost Shs.3,800/=? (3 marks)

100 × 2 × shs 3800
shs (100 × 7600)
shs 760,000

25. Mudubira has a shop. He bought 50 books at Shs.800/= each. He decided to sell 40 books at a profit of 40% and then the rest of the books at a loss of 20%.

(a) At what price did he sell each of the 40 books? (3 marks)

Buying price
shs 800 × 50
shs 40,000

40 books → 40 × shs 800
= shs 32000

100% + 40% = 140%
140% of shs 32000
$\frac{140}{100}$ × shs 32000
shs 44,800

each book
shs 44800
40
shs 1120

32
×14
128
+320
448

(b) Find how much loss he made on the rest of the books. (2 marks)

10 books → 10 × shs. 800
= shs. 8000

100% − 20% = 80%

80% of shs 8000

$\frac{80}{100} \times$ shs. 800

shs. 6400

less money
shs. 8000
− shs. 6400
shs. 1600

shs. 1600

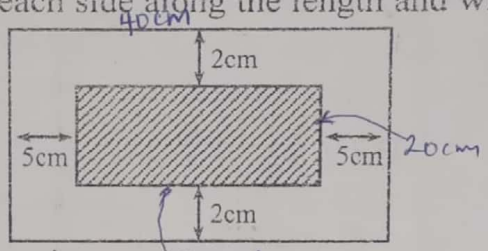
(c) Calculate the loss or gain he acquired after selling all the books. (2 marks)

Buying price → shs. 40,000

Selling price → shs 44800
+ shs. 6400
shs. 51200

Profit
shs. 51200
− shs 40,000
shs. 11,200

26. The diagram below shows a photograph 30cm by 20cm mounted on a frame leaving a margin of 5cm by 2cm on each side along the length and width respectively as shown below.



(a) Work out the **area** of the margin. 3 marks

Length
(30 + 5 + 5) cm
40cm

width
(20 + 2 + 2) cm
24cm

Area = L × W
= 40cm × 24cm
= 960cm²

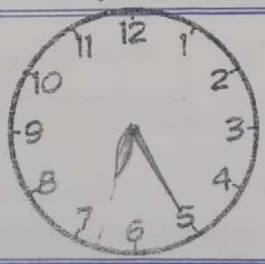
(b) Find the distance around the frame. (2 marks)

Shaded part

P = 2(L + W)
= 2(40cm + 24cm)
= 2 × 64cm
= 128cm

27. (a) Show eighteen hours and twenty five minutes on the given 12 hour clock face below. (2 marks)

18 25
− 12 00
6:25 pm



(b) A party started at 10:40a.m. and ended at a quarter to three in the afternoon. How long did the party last?

2:45 pm → 1200
+ 245
1445 hrs
− 1040 hrs
4:05

It took 4 hours and 5 minutes

28. A rectangular carpet is painted black, yellow and red in the ratio 4:3:5 respectively. The yellow painted region occupies 60 square metres.

(a) What is the area of the whole carpet? (3 marks)

B	Y	R
4	3	5
	60	

H.C.F

60 square metres / 3

20 square metres

Total ratio
4:3:5
4+3+5
12

Whole carpet
12 × 20 sq. metres
240 sq. metres

(b) By how many more square metres is the area of region red more than the area of region yellow? (2 marks)

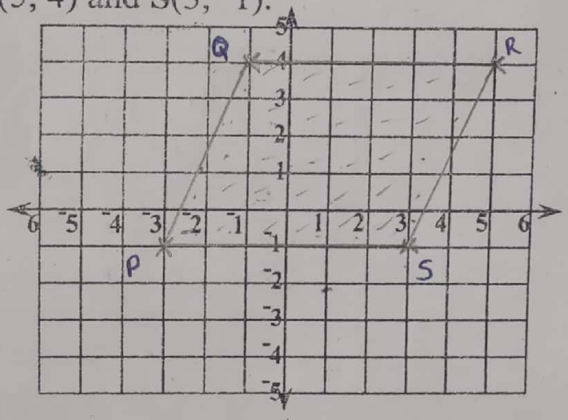
5 − 3 = 2

(2 × 20) more sq. metres

40 more sq. metres.

29. Using the grid given below, plot the following points correctly:

(a) P(−3, −1), Q(−1, 4), R(5, 4) and S(3, −1). (4 marks)



6 × 5

(b) Join points P to Q, Q to R, R to S and S to P. Name the figure formed. (1 mark)

Parallelogram

(c) Using 1sq = 1cm, workout the area of the figure formed. (1 mark)

Number of full squares + ½ × half squares

24 + ½ × 12

(24 + 6) cm²

30 cm²

30. In a club, ¼ of the members play Football, ⅓ play Hockey, ²/₅ of the remainder play Tennis and the rest of the members in the club play Basketball.

(a) If 40 members play Football, find the number of members in the whole club. (3 marks)

Football → ¼

Hockey → ⅓

¼ + ⅓ = (3 + 4)/12

= 7/12

Remainder

12/12 − 7/12 = (12 − 7)/12

= 5/12

Tennis → 2/5 + 8/12

= 1/6

Total

7/12 + 1/6 = (7 + 2)/12

9/12 = 3/4

Basketball

4/4 − 3/4 = (4 − 3)/4

¼

Whole club

(40 ÷ ¼) members

40/1 × 4/1 = 160 members

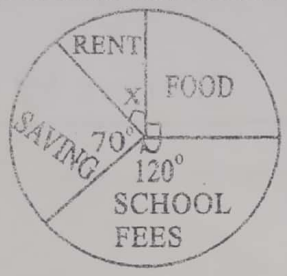
160 members

(b) What percentage of the members play Tennis?

$\left(\frac{1}{3} \times \frac{50}{100}\right)\%$

$16\frac{2}{3}\%$

31. The pie-chart below represents Dafala's monthly Shs.900,000/= expenditure. Use it to answer the questions that follow.



(a) How much less money does he save than spending on school fees? (3 marks)

$120° - 70° = 50°$

$\frac{50}{360} \times$ shs. 900,000

shs. 125,000 less money

(b) What percentage of his income does he spend on food? (2 marks)

$\left(\frac{90}{360} \times 100\right)\%$

25%

32. Given below is a timetable for a bus. Use it to answer the questions that follow.

STATION	Arrival	Departure
Kampala		8:00a.m.
Mukono	8:40a.m.	9:00a.m.
Lugazi	9:30a.m.	9:50a.m.
Jinja	10:50a.m.	11:10a.m.
Iganga	11:50a.m.	12:00noon
Bugiri	1:00p.m.	1:20p.m.
Busia	2:00p.m.	

(a) How long does the bus stop on the way? (2 marks)

20
20
20
10
+20
90 minutes

90 minutes

60

1 hour and 30 minutes

(b) If the distance from Kampala to Busia is 240Km; calculate the average speed of the bus. (3 marks)

1400
−800
600

6hrs

Average speed = Total distance / Total time taken

= 240km / 6hrs

40Kph