DIVINE EDUCATION CENTRE

PRIMARY LEAVING EXAMINATION-2023

MATHEMATICS (ITEM 1of 6)

Time allowed: 2hours 30 minutes

Random No.						Personal No.		

Candidate's Name: TR: WALTER

Candidate's Signature: 0775232978/752627380

District ID No.

Read the following instructions carefully:

1. Do not write your **school** or **district name** anywhere on this paper.
2. This paper has two sections **A** and **B**. Section **A** has **20 questions** and **section B** has **12 questions** .This paper has **12 pages** printed altogether.
3. Answer **all** questions. All the working for both sections **A** and **B** must be shown in the spaces provided.
4. **All** working must be done using a **blue** or **black** ball point pen or ink. Any work done in pencil other than graphs and diagrams will **NOT** be marked.
5. **No calculators** are allowed in the examination room.
6. Unnecessary **changes** in your work and handwriting that cannot be easily read may lead to loss of marks.
7. Do not fill anything in the table indicated **"For examiners' use only"** and the 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		

Turn Over

SECTION A: (40 MARKS)

*Answer **all** questions in this section*

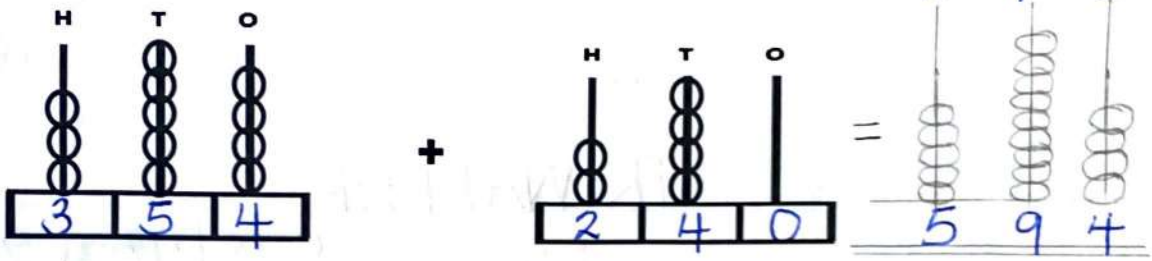
*Questions **1** to **20** carry two marks each*

1- Workout: 253 + 146

$$\begin{array}{r} 253 \\ +146 \\ \hline 399 \end{array}$$

2- Write the sum of the two numbers shown on the abacus in words.

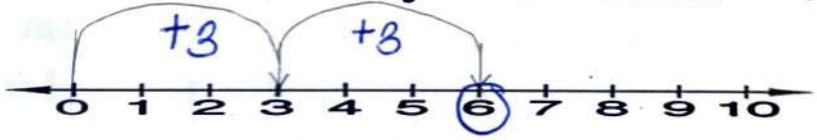
$$\begin{array}{r} 354 \\ +240 \\ \hline 594 \end{array}$$



Five hundred ninety-four

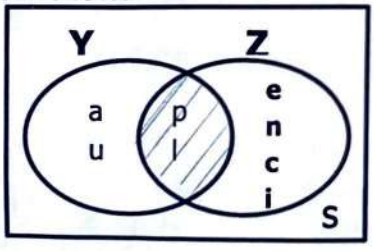
3- Work out : - 2 × -3 using a number line below.

$-1(-2x-3)$
$+2x+3$



$\therefore -2x-3 = +6$

4- Study the venn diagram below carefully and use it to answer the question that follow.



Find $n(Y \cap Z)'$

$(Y \cap Z)' = \{a, u, e, n, c, i, s\}$

$n(Y \cap Z)' = 7$

5- Given that $k = 5 \times 10^2 + 3 \times 10^0 + 2 \times 10^{-1}$
Find the value of k

$k = (5 \times 10 \times 10) + (3 \times 1) + (2 \times \frac{1}{10})$

$k = 500 + 3 + \frac{2}{10}$

$k = 500 + 3 + 0.2$

$k = 503.2$

6- Subtract: h - 2 from 3h

$3h-(h-2)$

$(3h-h)+2$

$2h+2$

$2h+2$

7- Change 2.50 kg into grammes.

$1kg = 1000g$

$2.5kg = \left(\frac{25}{10} \times 1000\right)g$

$(25 \times 100)g$

$2,500g$

8- Find the next two numbers in the sequence :

-7 , -5 , -2 , 3 , 10 , 21

+2 +3 +5 +7 +11

$-5-(-7)$

$-5+7$

$+2$

$3+7$	$10+11$
10	21

9- The average of y + 2 , 3 , -2 and 4 is 3. Find the value of y.

Sum of data = Mean × No of data

$y+2+3+4-2 = 3 \times 4$

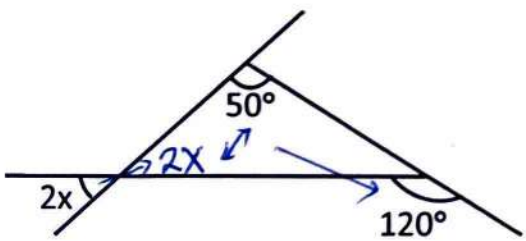
$y+9-2 = 12$

$y+7 = 12$

$y+7-7 = 12-7$

$y = 5$

10- Find the value of x in the figure below in degrees.



$2x+50° = 120°$ (2 int ∠ = 180°)

$2x+50°-50° = 120°-50°$

$\frac{12x}{2_1} = \frac{70^{35}}{2_1}$

$x = 35°$

11- Round off 9.97 to one place of decimal.

$$\begin{array}{r} 0 \\ 9.97 \\ +0.1 \\ \hline 10.0 \end{array}$$

Tths Hths

$\therefore 9.97 \simeq 10.0$

12- Amina paid sh.18,000 for an article after being given a discount of 10%.
Calculate the original price of the article.

$100\% - 10\% = 90\%$

$\frac{90}{100} \rightarrow$ Sh 18,000

Sh $18000 \div \frac{90}{100}$

$18000 \times \frac{100}{90}$

2000

1

Sh 2000 X 10

Sh 20,000

13- Given that one US dollar costs Ug.sh. 3800.
How many United States dollars will Karim get from Ug.sh.570,000?

US$1 → Ugsh 3800

Ugsh 3800 → US$1

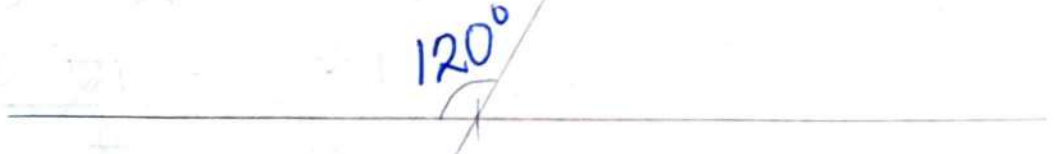
Ugsh 570,000 →

$570000 \times \frac{1}{3800}$

150

150 US dollars

14- Using a protractor , draw an angle of 120° in the space below.



15- How many quarter kilogramme sackets can be got from $2\frac{1}{2}$ kg of sugar?

$2\frac{1}{2} \div \frac{1}{4}$

$\frac{5}{2}$ kg $\div \frac{1}{4}$ kg

$\left(\frac{5}{2} \times \frac{4}{1}\right)$ packets

(5 X 2) quarter kg packets

10 quarter kg packets

16- The circumference of a semi-circle is 33 metres.
Find its area.

$\frac{1}{2} 2\pi r = C$

$\frac{1}{2} \times \frac{1}{2} \times \frac{22}{7} r = 33m$

$7 \times \frac{22r}{7} = 33m \times 7$

$\frac{22r}{22} = \frac{33m}{22} \times 7$

$r = \frac{21m}{2}$

$Area = \frac{1}{2}\pi r^2$

$A = \frac{1}{2} \times \frac{22}{7} \times \frac{21}{2} \times \frac{21}{2}$

$A = \left(\frac{11 \times 63}{4}\right) m^2$

$A = \frac{693 m^2}{4}$

$A = 173\frac{1}{4} m^2$

17- Simon started to revise his book at twenty minutes to midnight.
He revised for 5 hours and 30 minutes .
At what time did he stop revising?

HRS	MIN
12	80
-11	40
00	20

HRS	MIN
5	30
-	20
5	10

At 5:10 a.m.

18- Solve the inequality: $8 - 2p > 2$

$8 - 2p > 2$

$8 - 8 - 2p > 2 - 8$

$-2p > -6$

$\frac{-2p}{-2} < \frac{-6}{-2}$

$p < +3$

19- In a tin there are 5 blue pens and 7 red pens. If James picked a pen from the tin at random. Find the probability that the pen picked is red.

$Prob = \frac{n(E)}{n(S.S)}$

$Prob = \frac{7}{7+5}$

$Probability = \frac{7}{12}$

20- Peter got a loan of sh. 100,000 from Dove cash which gives an interest rate of $15\frac{1}{2}$ % per month. Calculate the amount he paid at the end of 6 months.

$S.I = P \times R \times T$

$S.I = Sh100,000 \times \frac{15\frac{1}{2}}{2 \times 100} \times 6$

$S.I = Sh100,000 \times \frac{31}{200} \times 6$

$S.I = Sh1000 \times 93$

$SI = Sh93000$

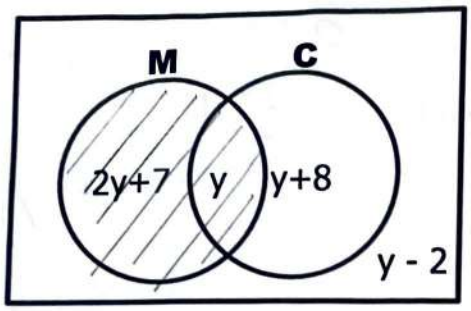
$A = P + I$

Sh100,000
+Sh 93,000
Sh193,000

SECTION B :60 MARKS

*Answer **all** questions in this section*
Marks for each question are indicated in the brackets.

21- Study the venn diagram below and use it to answer the questions that follow.



(a) Given that 16 pupils do like meat (M) complement.
Calculate the number of pupils in the class. ***(03marks)***

$y+8+y-2=16$
$y+y+8-2=16$
$2y+6=16$
$2y+6-6=16-6$

$\frac{12y}{2_1}=\frac{10^5}{2_1}$
$y=5$

$16+2y+y+7$
$16+7+3y$
$23+(3\times5)$
$(23+15)$ pupils

(b) How many pupils like only one type of dish? ***(02marks)***

$2y+7+y+8$
$2y+y+7+8$
$3y+15$

$(3\times5)+15$
$(15+15)$ pupils
30pupils

38pupils

22-(a) Workout: $2\,3_{five} \times 4\,1_{five}$ ***(02marks)***

$\begin{array}{r} 2\ 3_{five} \\ \times\ 4\ 1_{five} \\ \hline 1\ 2\ 3 \\ +\ 8\ 2 \\ \hline 1\ 4\ 4\ 3 \end{array}$

1443_{five}

(b) Given that $3\,4_y = 4\,2_{five}$. Find the value of y ***(03marks)***

$\frac{y}{3}\ \frac{0}{4} = \frac{F}{4}\ \frac{0}{2}$
$(3\times y)+(4\times1)=(4\times5)+(2\times1)$
$3y+4=20+2$

$3y+4=22$
$3y+4-4=22-4$
$\frac{3y}{3_1}=\frac{18}{3_1}$

$y=6$

23- Joseph got 3 less sweets than Sandra.
Joan got twice of what Joseph got and this was the same as what Sandra got.
Calculate the total number of sweets they shared altogether. ***(04marks)***

Let the number of sweets Sandra got be k

Sandra	Joseph	Joan
k	k-3	2(k-3)

$2(k-3) = k$
$2k-6 = k$
$2k-6+6 = k+6$

$2k = k+6$
$2k-k = k-k+6$
$k = 6$

Sandra 6 sweets
Joan $6-3 = 3$ sweets
Joseph

$2(6-3)$
$2\times3 = 6$ sweets

Total no
$6+6+3$
15 sweets

24- Mutesi went for shopping and bought the following items as shown in the table below:

Items	Quantity	Unit cost	Amount
Rice	2 kg	Sh.3500	Sh. 7000
Meat	1500 grammes	Sh.16000	Sh.24000
Salt	$\frac{1}{2}$ kg	Sh. 4000	Sh.2000
Total Expenditure			Sh. 33000

a) Complete the table above correctly. ***(04marks)***

Rice
Sh 3500
× 2
Sh 7000

Meat
Sh 24000 × 1500g
Sh 16000
2 1
1500g

Salt
Sh 2000 ÷ $\frac{1}{2}$
Sh 2000 × $\frac{2}{1}$
Sh 4000

Total amount
Sh 24000
Sh 7000
+Sh 2000
Sh 33000

(b)If she paid sh.31900, calculate the percentage discount she was given.

Discount
Sh 33,000
−Sh 31,900
Sh 01,100

% discount = $\frac{\text{Discount}}{\text{Old price}} \times 100\%$ ***(02marks)***
$= \frac{\text{Sh } 1100}{\text{Sh } 33000} \times 100\%$
$3\frac{1}{3}\%$

25- When preparing tea, Sarah mixed milk in water in the ratio of 3:2 respectively. The tea she prepared was 2.5 litres.
How much milk in millilitres was used to prepare tea? ***(04marks)***

$1L = 1000ml$

$2.5L = \left(\frac{25}{10} \times 1000\right)ml$

$2500ml$

Milk	Water	Total ratio
3	2	3+2
		5

Milk

$\left(\frac{3}{5_1} \times \overset{500}{\cancel{2500}}\right)ml$

$(3 \times 500)ml$

$1500ml$

26- The exterior angle of a regular polygon is a third its interior angle.
a) Calculate the size of the exterior angle. ***(03marks)***

Interior	Exter	Sum
3	1	180°

Total ratio

$3+1 = 4$

Ext ∠

$\frac{1}{\cancel{4}_1} \times \cancel{180}^{45°}$

$(1 \times 45)°$

$45°$

b). Name the polygon. ***(02marks)***

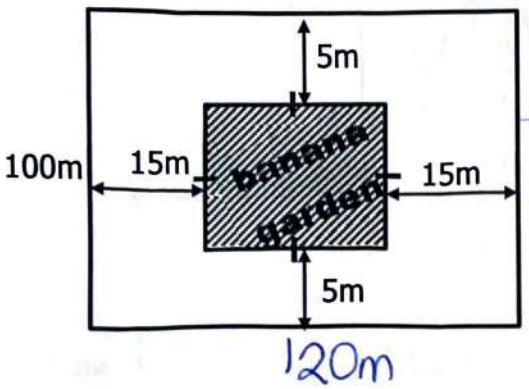
No of sides = Ext ∠ sum / Ext ∠

$\left(\frac{\cancel{360}^{8}°}{\cancel{45}°_1}\right)$ sides

8 sides

Octagon

27- The figure below shows **a square** piece of **a banana garden** which was left on a certain farm. Study it carefully and use it to answer the questions that follow.



a) Find the length of the farm. ***(02 marks)***

Square side	Length
100m − (5m + 5m)	90m + (15 + 15)m
100m − 10m	90m + 30m
90m	120m

(b) Calculate the area of the farm not occupied by the banana garden. ***(03marks)***

Area (Rectangle)	Area (square)	Area of farm unoccupied
$A = L \times W$	$A = S \times S$	$A = 12000m^2$
$A = 120m \times 100m$	$A = 90m \times 90m$	$-8100m^2$
$A = 12000m^2$	$A = 8100m^2$	$3900m^2$

28- At a wedding ceremony $\frac{5}{7}$, of the guests were females and the rest were males.

If 25% of the males were boys and 60 more females than males attended the wedding.

How many children attended the wedding if $\frac{2}{5}$ of the females were girls?

(06 marks)

Females	Girls	Difference in Males and Females	
$\frac{5}{7}$	$\frac{2}{5} \times \frac{5}{7} = \frac{2}{7}$	$\frac{5}{7} - \frac{2}{7} = \frac{5-2}{7} = \frac{3}{7}$	$60 \div \frac{3}{7}$
Males	Boys		$60 \times \frac{7}{3}$
$\frac{7}{7} - \frac{5}{7} = \frac{2}{7}$	$\frac{25}{100} \times \frac{2}{7} = \frac{1}{14}$	Children No of people $\frac{3}{7} \rightarrow 60$	(20×7) people
			140 people
			Children
			$\frac{2}{7} + \frac{1}{14} = \frac{4+1}{14}$
			$\frac{5}{14}$
			$\left(\frac{5}{14} \times 140\right)$ children
			(5×10) children

50 children

29-a)Work out: $\frac{0.24 + 0.6}{0.3 \times 0.4}$ ***(03 marks)***

0·6
+0·24
0·84

$\frac{84}{100} \div (\frac{3}{10} \times \frac{4}{10})$

$\frac{84}{100} \times \frac{10}{3_1} \times \frac{10}{4_1}$

$\frac{7 \times 1 \times 1}{1 \times 1 \times 1}$

$\frac{7}{1}$

7

b) Simplify: $\frac{2}{3} - \frac{3}{4} + \frac{1}{3}$ (BODMAS) ***(02marks)***

$(\frac{2}{3} + \frac{1}{3}) - \frac{3}{4}$

$\frac{(8+4)-9}{12}$

$\frac{12-9}{12}$

$\frac{3^1}{12_4}$

$\frac{1}{4}$

30-A motorist drove a car for 210 minutes covering a distance of 280 km.

a)Calculate the average speed for the motorist in kilometer for every hour.

Min:to hr

60min = 1hr

$210min = \frac{210^{3r\,3}}{60_1^2}$

$3\frac{1}{2}hrs$

A·S = ~~TDC~~ $\frac{TDC}{TTT}$

A·S = 280Km ÷ $3\frac{1}{2}$ hrs

A·S = 280Km ÷ $\frac{7}{2}$ hr

A·S = $\frac{280^{40}Km}{1} \times \frac{2}{7_1}$ hrs

(03 marks)

A·S = 40Km X 2hrs

A·S = 80Km/h

b) If the motorist continued for the second journey at the same speed for $1\frac{1}{2}$ hours, how long was the second journey? ***(02 marks)***

D = S X T

D = 80km X $1\frac{1}{2}$ hrs

D = $\frac{80^{40}km}{1} \times \frac{3}{2_1}$ hrs

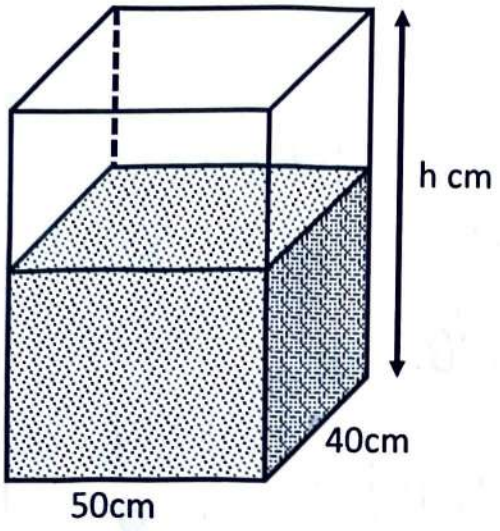
hr

D = 40Km X 3

~~D/H/1/2/40Km~~

D = 120Km

31- Study the diagram below carefully and use it to answer the questions that follow.



(a) If the tank has a full capacity of 200 litres.
Calculate the height of the tank in centimetres. ***(03marks)***

$1L = 1000cm^3$

$H = \frac{Volume}{L \times W}$

$H = \frac{200 \times 1000\,cm \times cm \times cm}{50cm \times 40cm}$

$H = 100cm$

(b) Given that the tank is $\frac{3}{4}$ full of water, calculate in litres the amount of water needed to fill the tank to its full capacity. ***(02marks)***

Amount in $\left(\frac{3}{4} \times 200\right)$ litres

(3×50) litres

150 litres

Amount of litres needed

280 litres

-150 litres

050 litres

32- Mr. Byemalo uses his land as follows:

- 45% of the land for growing maize
- 30% for growing beans and uses the rest for grazing .

Using a diameter of 8 cm, draw an accurate pie-chart representing the above information. **(05marks)**

% for grazing

$100\% - (45+30)\%$

$100\% - 75\%$

25%

Maize growing

$\frac{45}{100} \times 360^\circ$

$\frac{9}{2_1}\ \frac{18}{1}\ (9 \times 18)^\circ$

162°

Beans growing

$\frac{30}{100} \times 360^\circ$

$(3 \times 36)^\circ$

108°

Grazing

$\frac{25}{100_4} \times \frac{90}{1}^\circ$

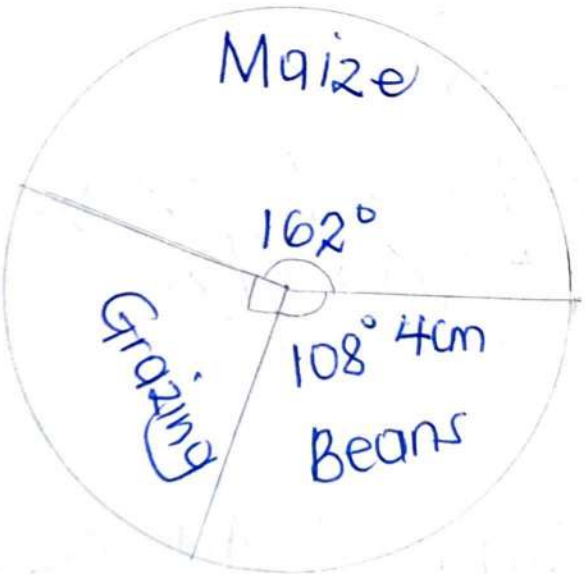
90°

A pie chart

$r = \frac{D}{2}$

$r = \frac{8^4 cm}{2_1}$

$r = 4cm$



END