DIVINE EDUCATION CENTRE

PRE MOCK ASSESSMENT -2023

MATHEMATICS (ITEM 1 of 3)

Time allowed: 2hours 30 minutes

Random No.						Personal No.		

Candidate's name: ..TRIWALTER 752627380.....

Candidate's Signature: ..Alm.....

District ID:

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)

1- Workout: $\begin{array}{r} 32 \\ \times\ 4 \\ \hline 128 \end{array}$

$4 \times 2 = 8$

$4 \times 3 = 12$

2- Express DXCIV as Hindu- Arabic numeral.

DXCIV = D XC IV

DXCIV = 500 + 90 + 4

DXCIV = 594

$\begin{array}{r} 500 \\ 90 \\ +\ 4 \\ \hline 594 \end{array}$

3- Simplify: $\frac{2}{3} - \frac{1}{2}$

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

$= \frac{1}{6}$

4- Round off 7.984 to one place of decimal.

$\begin{array}{r} {\scriptstyle 0+1\ \text{THTHS}\ \text{HTHS}\ \text{THTHS}} \\ 7.984 \\ +0.1 \\ \hline 8.0 \end{array}$

$7.984 \simeq 8.0$

5- Solve the inequality: $6 - 2r > 4$

$6 - 2r > 4$

$6 - 6 - 2r > 4 - 6$

$-2r > -2$

$-2r > -2$

$\frac{-2r}{-2} < \frac{-2}{-2}$

$r < 1$

6- Simplify: $-3 - +6$

$-3 - +6$

$-3 - (+6)$

$-3 - 6$

$= -9$

7- An English examination ended at 1:35p.m if the examination lasted for 2 ¼ hours, at what time did the examination start?

Starting time = Ending time - Duration

1:35p.m to 24hours

HOURS	MIN
12	00
+1	35
13	35

HRS	MIN
13	35
-2	15
11	20

It started at 1:20am

8- Find the highest number that can be exactly divided by 12 and 18.

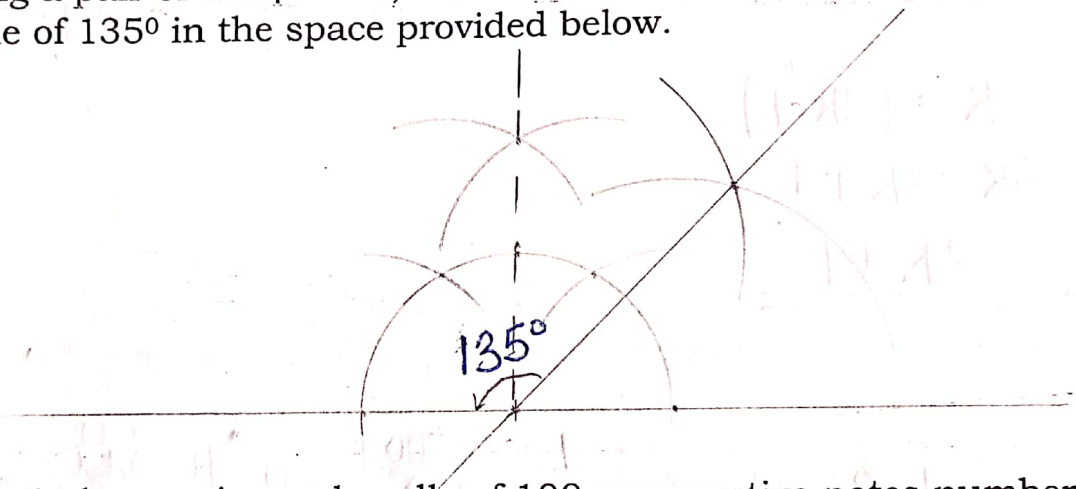
HCF Of 12 and 18

2	12	18
3	6	9
	2	3

= 2x3

= 6

9- Using a pair of compasses, ruler and a very sharp pencil only, construct an angle of 135° in the space provided below.



10- Jamirah was given a bundle of 100 consecutive notes numbered from CX1775042. Find the reading of the last note of the bundle.

No of spaces = 100-1

99spaces

Last note = 1st note + No of spaces

= CX1775042 (+1 +1)

\+ 99

CX1775141

11- Convert 103_{five} to a denary base.

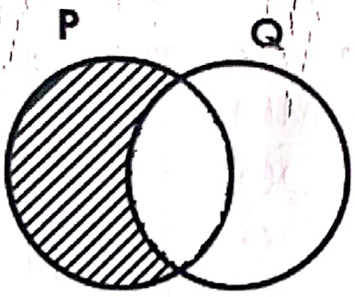
FF	F	0
1	0	3

(1x5x5)+(0x5)+(3x1)

25+0+3

28ten

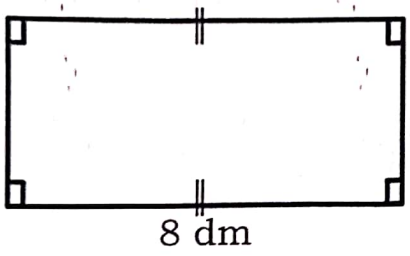
12- Describe the shaded region using set notations.



$P + (Q)$

or (set P) only

13- The perimeter of the figure below is 24dm. find the value of h.



$W = \frac{P - 2L}{2}$

$2(L+W) = P$

$2(8dm + h) = 24dm$

$16dm + 2h = 24dm$

$16dm - 16dm + 2h = 24dm - 16dm$

$\frac{1\,2h}{2\,1} = \frac{8^{4}dm}{2\,1}$

$h = 4dm$

14- Subtract 3k – 1 from 5k

$5K - (3K - 1)$

$5K - 3K + 1$

$2K + 1$

15- A worker was given a penalty of $2\frac{5}{8}$ % off from his June salary of sh.400,000 for reporting late on duty. How much money did he remain with after penalty?

$2 \times \frac{5}{8}$

$\frac{21}{8} \div \frac{100}{1}$

$\frac{21}{8} \times \frac{1}{100} \times sh\ 400,000$

$\frac{21}{2} \times sh\ 500$

$= 21 \times sh\ 500$

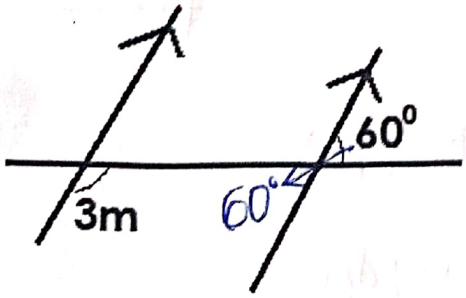
$= sh\ 10500$

$sh\ 400,000$

$-sh\ 10500$

$sh\ 389,500$

16- Find the value of m in the figure below.



$3m + 60° = 180°$ (co-int ∠)

$3m + 60° - 60° = 180° - 60°$

$\frac{1\,3m}{3\,1} = \frac{120°\ 40°}{3\,1}$

$m = 40°$

17- Given that  represents 6 cups. How many pictures will represent 42 cups?

6 cups → 1 picture

42 cups → $\left(\frac{42^{7}}{6_{1}}\right)$ pictures

= 7 pictures

18- Gloria bought one dozen of exercise books at sh. 6,000. She later sold al the books at sh.700 each book. Calculate the profit she made .

Selling price

1 book → sh 700

12 books → sh 700 × 12

= sh 8400

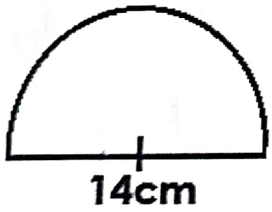
Profit = S·P − B·P

= sh 8,400

− sh 6,000

sh 2,400

19- Find the total distance round the figure below.



$D = \left(\frac{1}{2}\pi D\right) + D$

$D = \left(\frac{1}{2_{1}} \times \frac{22}{7_{1}} \times 14^{2}\text{cm}\right) + 14\text{cm}$

$D = 22\text{cm} + 14\text{cm}$

$D = 36\text{cm}$

20- A carpenter hammered nails into a timber at intervals of 30cm each. The length from the first nail to the last nail was 3.6 metres. How many nails did the carpenter hammer into the timber?

No of nails = $\left(\frac{36^{12}}{10} \times 100\text{cm}\right) + 1$

$\frac{30\text{cm}}{1}$

= (12 + 1) nails

= 13 nails

= $\left(\frac{\text{Distance}}{\text{Interval}}\right) + 1$

SECTION B:60MARKS

21- Given the digits 4, 0, 5

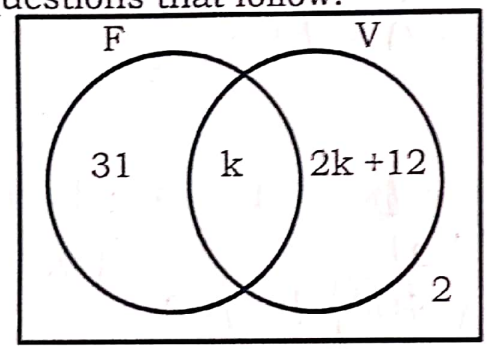
(a) Write all the 3-digit numerals that can be formed using the above digits. (2marks)

4	5
405	504
450	540

(b) Calculate the sum of the largest and the smallest 3-digit numerals formed in (a) above. (2marks)

$$\begin{array}{r} 540 \\ +405 \\ \hline 945 \end{array}$$

22- The venn diagram below shows the number of pupils who enjoy playing football (F) and volley ball (V). Study it carefully and use it to answer the questions that follow.



(a) If 53 pupils enjoy playing only one game, how many pupils enjoy playing volleyball? (3marks)

$2K+12+31 = 53$

$2K+43 = 53$

$2K+43-43 = 53-43$

$\frac{12K}{2} = \frac{10}{2}$ | 5

$K = 5$

Volleyball

$(2K+K)+12$

$3K+12$

$(3\times5)+12$

$=(15+12)$ pupils

$=27$ pupils

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

$K+2K+31+12+2$

$3K+45$

$(3\times5)+45$

$=(15+45)$ pupils

$=60$ pupils

23- Simon went to the shop with sh. 25,000 and bought the following items.
- 2kg of sugar at sh. 5800 each kg.
- 3kg of beans at sh. 3200per kg.
- 1500ml of milk at sh. 1800 each litre.

(a) Calculate his total expenditure. (4marks)

Sugar	Beans	Milk	Total cost
sh 5800 × 2 = sh 11,600	sh 3200 × 3 = sh 9,600	1500/1000 × sh 1800 = 15 × sh 180 = sh 2,700	sh 11,600 + sh 9600 + sh 2700 = sh 23,900

(b) What was his change? (2marks)

sh 25,000 − sh 23,900 = sh 01,100

24- Jane, Joan and Jolly shared sh. 270,000 in the ratio of 3:4:2 respectively.

(a) How much did each get? (4marks)

Jane	Joan	Jolly
3	4	2

Total ratio	Jane	Joan	Jolly
3+4+2 = 9	3/9 × sh 270,000 = 3 × sh 30,000 = sh 90,000	4/9 × sh 270,000 = 4 × sh 30,000 = sh 120,000	2/9 × sh 270,000 = 2 × sh 30,000 = sh 60,000

(b) How much more money did Joan get that Jane? (1mark)

Difference in ratio

4 − 3 = 1 more

1/9 × sh 270,000 = sh 30,000 more

25- The table below shows how pupils performed in a mathematics contes

Marks	80	K	95	70
Number of pupils	2	3	1	4

(a) How many pupils participated in the contest? (1mark)

$= (2+3+1+4)$ pupils

$=$ 10pupils

(b) Find the mark scored by the 3 pupils if their average mark was 80.5 (3marks)

$\frac{\text{Sum of data}}{\text{No of data}} = \text{Average}$

$\frac{(80\times2)+(3\times K)+(95\times1)+(70\times4)}{2+3+1+4} = 80.5$

$\frac{160+3K+95+280}{10} = 805$

$\frac{3K+160+95+280}{10} = 80.5$

$\frac{3K+535}{10} = \frac{805}{10}\times 10$

$3K+535 = 805$

$3K+535-535 = 805-535$

$\frac{3K}{3} = \frac{270}{3}$

$K = 90$

26- A motorist drove from Iganga to Jinja at a speed of 90km/hr for 2hours. At Jinja, he rested for 30minutes. He later continued to Mukono at a speed of 50km/hr for 3hours.

(a) Find the total distance from Iganga to Mukono. (3marks)

Distance (Iganga to Jinja)

$D = S\times T$

$D = \frac{90km}{1hr}\times 2hrs$

$D = 90km\times2$

$D = 180km$

D (Jinja)

$D = S\times T$

$D = \frac{50km}{1hr}\times 3hrs$

$D = 50km\times3$

$D = 150km$

Total distance

$= 180km + 150km$

$= 330km$

(b) Calculate his average speed for the whole journey. (2marks)

$A.S = \frac{TDC}{TTT}$

$A.S = \frac{180km+150km}{2hrs+\frac{1}{2}hr+3hrs}$

$A.S = 330km \div 5\frac{1}{2}hrs$

$A.S = 330km \div \frac{11}{2}hr$

$A.S = \frac{330km}{1}\times\frac{2}{11}$

$A.S = \frac{660km}{11hrs}$

$A.S = 60km$

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Number of pupils	2	3	1	4

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(b) Find the mark scored by the 3 pupils if their average mark was 80.5

$\frac{\text{Sum of data}}{\text{No of data}} = \text{Average}$

$\frac{(80\times2)+(3\times K)+(95\times1)+(70\times4)}{2+3+1+4} = 80.5$

$\frac{160+3K+95+280}{10} = 805$

$\frac{3K+160+95+280}{10} = 80.5$ (3marks)

$\frac{3K+535}{10} = \frac{805}{10}\times 10$

$3K+535 = 805$

$3K+535-535 = 805-535$

$\frac{3K}{3} = \frac{270}{3}$

$K = 90$ marks

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$D = 50km\times3$

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Total distance

$= 180km + 150km$

$= 330km$

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$A.S = \frac{TDC}{TTT}$

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$A.S = 330km \div \frac{11}{2}hr$

$A.S = 330km\times\frac{2}{11}$

$A.S = \frac{660km}{11hrs}$

$A.S = 60km/h$

A.S $= 60km/h$

27- Mary carried 36eggs to the house. In every trip, she carried 3 less eggs than the previous one. If she made 3 trips, how many eggs did she carry in the last 2 trips? (5marks)

Let the number of eggs carried in the 1st trip be K

1st trip	2nd trip	3rd trip	Total
K	K-3	K-6	36eggs

$K + K-3 + K-6 = 36\text{eggs}$
$K+K+K-3-6 = 36\text{eggs}$
$3K - 9 = 36\text{eggs}$
$3K - 9 + 9 = (36+9)\text{eggs}$
$3K = 45\text{eggs}$

$\frac{3K}{3_1} = \frac{45^{15}\text{eggs}}{3_1}$

$K = 15\text{eggs}$

2nd	3rd
K-3	K-6
15-3	15-6
12eggs	9eggs

sum
12 eggs
+9 eggs
21 eggs (3marks)

28- (a) Workout: $\frac{0.21 \times 0.4}{0.07 \times 0.12}$

$\left(\frac{21}{100} \times \frac{4}{100}\right) \div \left(\frac{7}{100} \times \frac{12}{100}\right)$

$\frac{21}{100} \times \frac{4}{100} \times \frac{100}{7} \times \frac{100}{12}$

$= \frac{1 \times 1 \times 10 \times 1}{1 \times 1 \times 1 \times 1}$

$= \frac{10}{1}$

$= 10$

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

$\left(\frac{2}{3} + \frac{1}{3}\right) - \frac{1}{4} = \frac{(8+4)-3}{12}$

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

$= \frac{9}{12}\ ^{3}_{4}$

$= \frac{3}{4}$

29- The interior angle sum of a regular polygon is 720°. (3marks)
(a) Calculate the number of sides of the polygon.

Int∠sum $= 180°(n-2)$
$180°(n-2) = \text{Int}\angle\text{sum}$
$\frac{180°(n-2)}{180°} = \frac{720°}{180°}$

$n - 2 = 4$
$n - 2 + 2 = 4 + 2$
$n = 6$

∴ 6 sides

(b) Calculate the size of the exterior angle. (2marks)

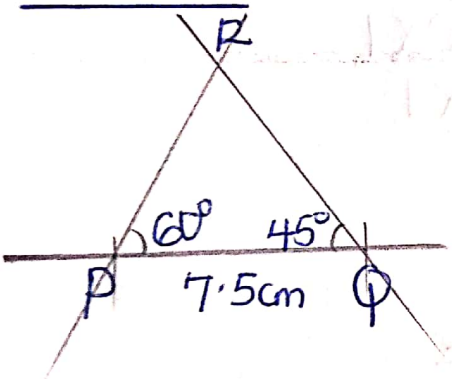
$$\text{Ext}\angle = \frac{\text{Ext}\angle \text{ sum}}{\text{No of sides}} = \frac{360^{\circ}}{6} = 60^{\circ}$$

(c) Name the polygon. (1mark)

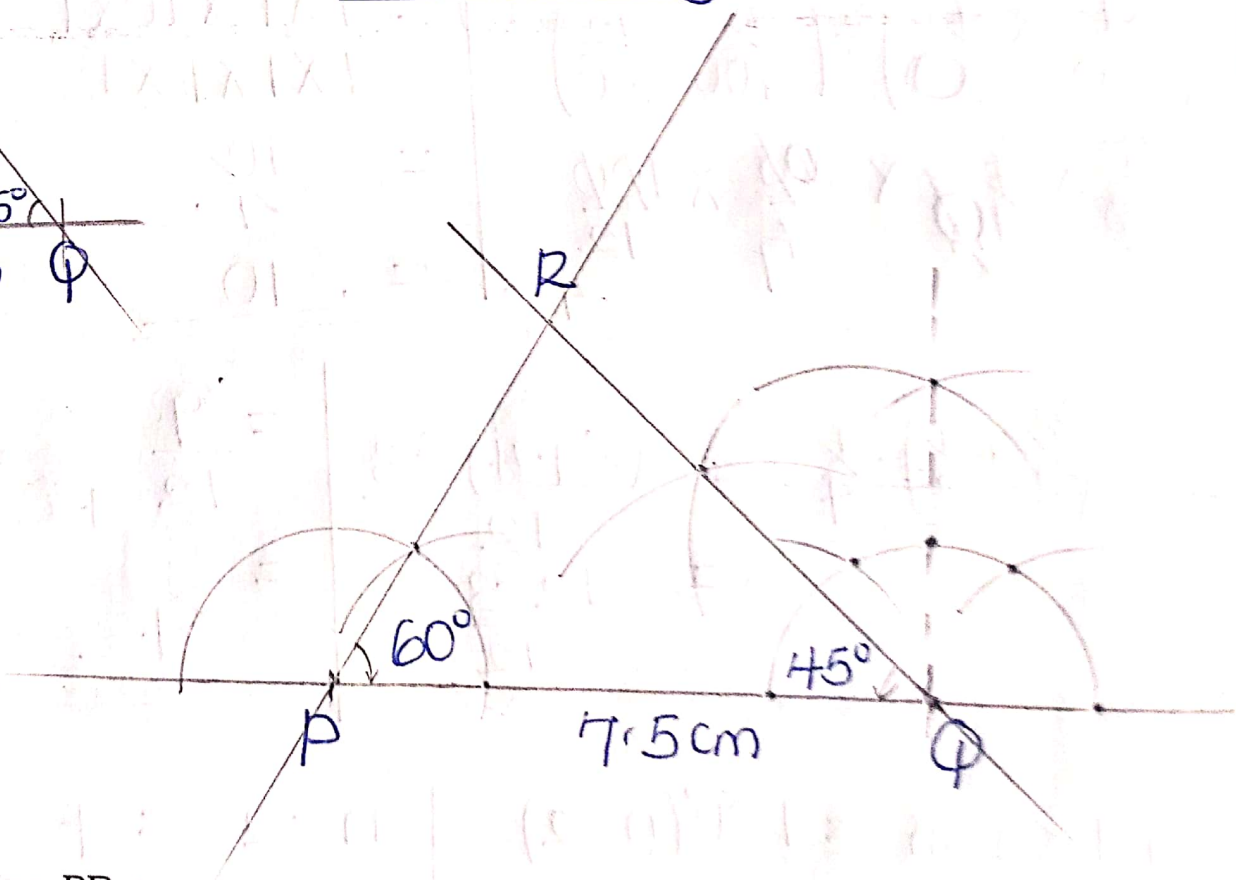
Hexagon

30- Using a pair of compasses, ruler and a pencil only, construct a triangle PQR where line PQ = 7.5cm, angle PQR = 45° and angle QPR = 60°. (4marks)

Sketch



Accurate diagram



(b) Measure line PR (1mark)

PR = 5·4cm

Accept 5·3cm, 5·4cm, 5·5cm

31- The total distance round the circular police post is 880cm. find the area of the room for the police post. (4marks)

$2\pi r = C$

$2 \times \frac{22}{7} r = 880cm$

$7 \times \frac{44r}{7} = 880cm \times 7$

$\frac{1\cancel{44}r}{\cancel{44}_1} = \frac{\overset{20}{\cancel{880}}cm \times 7}{\cancel{44}_1}$

$r = 20cm \times 7$

$r = 140cm$

Area

$A = \pi r^2$

$A = \frac{22}{7} \times \overset{20}{\cancel{140}}cm \times 140cm$

$A = (22 \times 20cm) \times 140cm$

$A = 440cm \times 140cm$

$A = 61,600cm^2$

32- Given that the equation of the line h is Y = x + 2

(a) Complete the table below. (4marks)

X	0	1	2	-2	-3	-4
Y	2	3	4	0	-1	-2

Y

$Y = X + 2$

$Y = 1 + 2$

$Y = 3$

Y

$Y = X + 2$

$Y = -2 + 2$

$Y = 0$

X

$X + 2 = Y$

$X + 2 = -1$

$X + 2 - 2 = -1 - 2$

$X = -3$

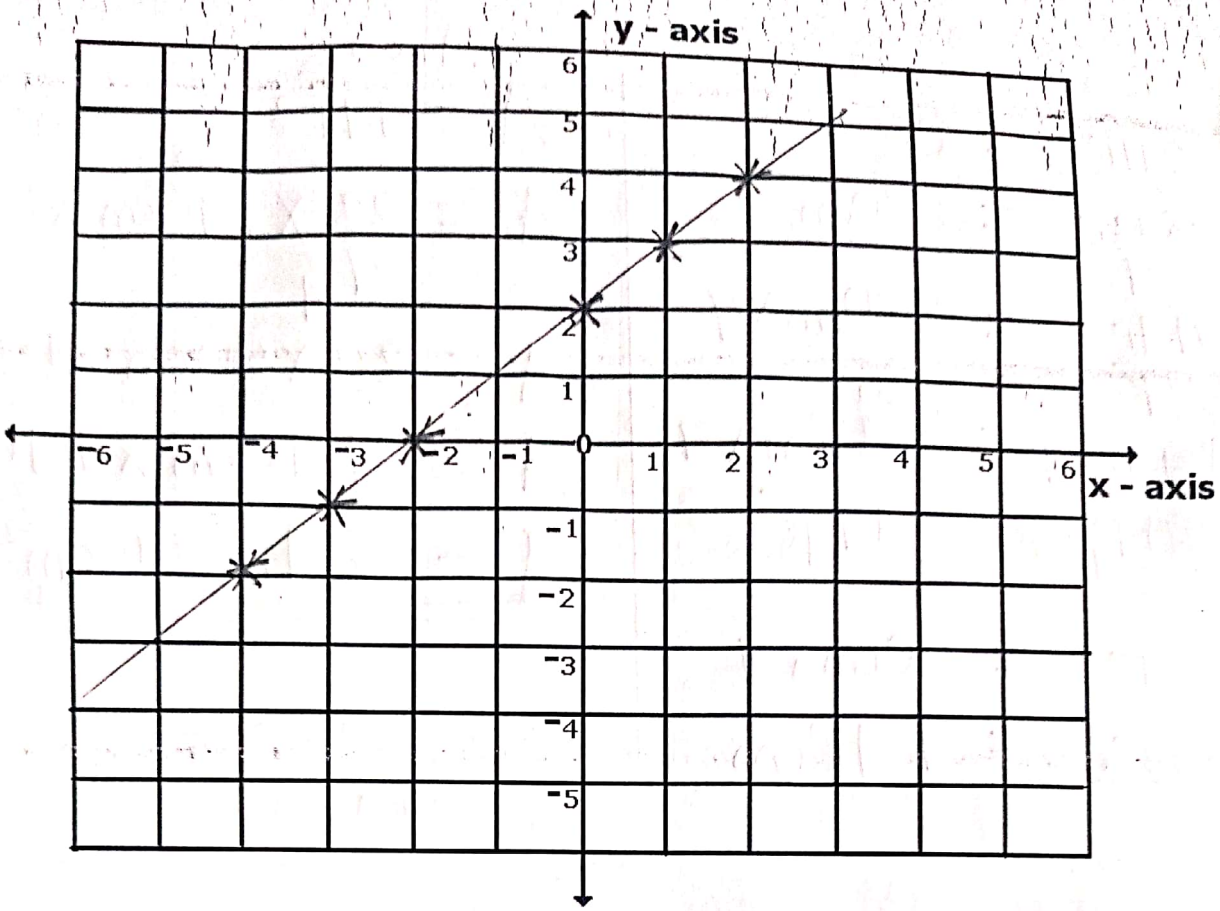
Y

$Y = X + 2$

$Y = -4 + 2$

$Y = -2$

(b) Plot the above coordinates on the graph below to show the line. (2marks)



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