LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

VHEMBE EAST DISTRICT

SENIOR PHASE

GRADE 9

MATHEMATICS

TERM 3 COMMON TEST

19 SEPTEMBER 2023

MARKS: 50
TIME: 1H30

This question paper consists of 10 pages including the cover page.

INSTRUCTIONS**:**

1. Answer all the questions on a separate answer sheet
2. Answer question 2.4 on the grid paper provided. Remove the grid paper from the question paper and submit together with your answer sheet.
3. Number your answers the way the questions are numbered.
4. Show all your calculations.
5. You may start with any question, but keep its sub-questions together.
6. A non-programmable calculator may be used.
7. Write neatly and legibly.

QUESTION 1 **[10]**

Four options are provided as possible answers to the following questions. Choose the correct option and write only the letter (A – D) next to the question number, for example 1.11. D

1.1. The gradient between A(4 ; 8) and B(2 ; 2) is . . .

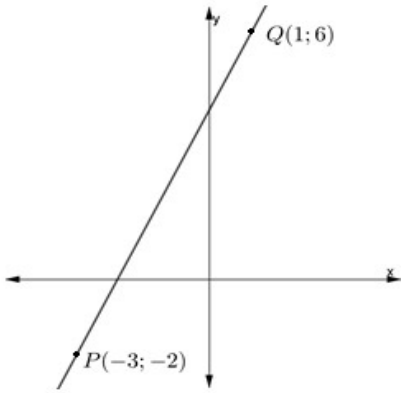
A $m=¿\frac{1}{3}$

B $m=3$

C $m=-¿\frac{1}{3}$

D $m=-3$ (1)

1.2. Consider the graph of $y=mx+c$ sketched below:



The equation of the graph is given by ….

A $y=2x-4$

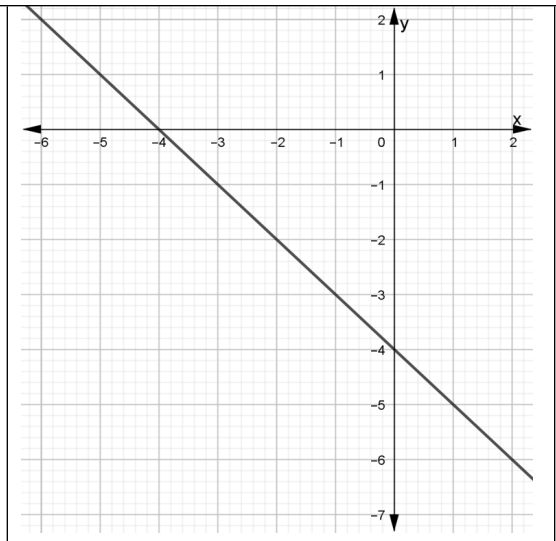
B $y=2x+4$

C $y=-2x+4$

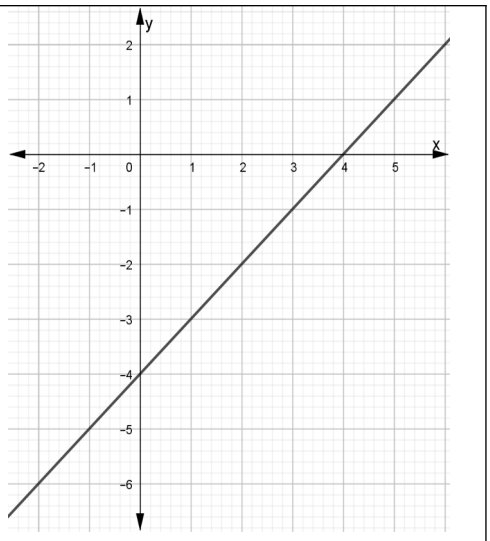
D $y=-2x-4$ (1)

1.3. Correct graph of $y=x-4$ is . . .

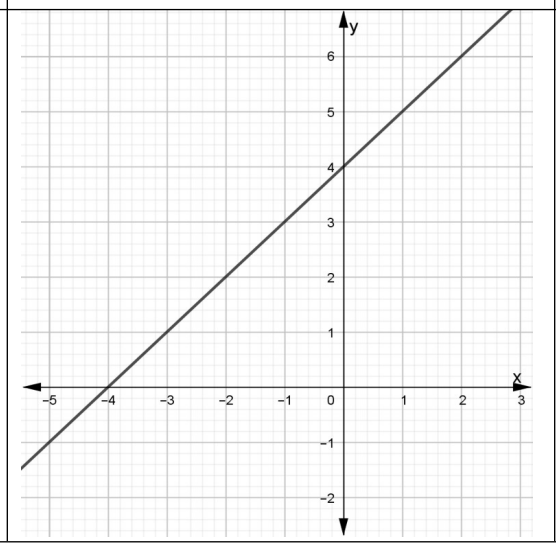
A



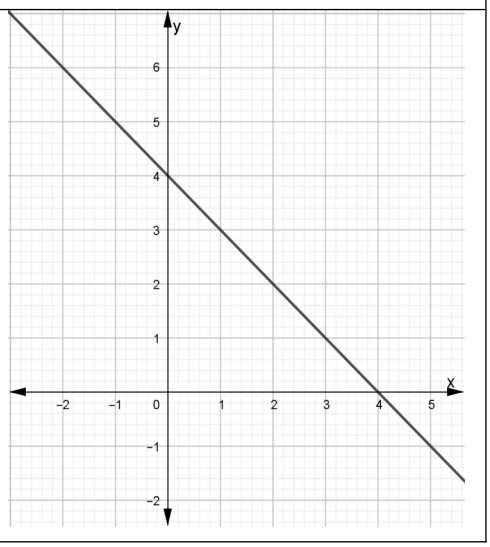
B



C

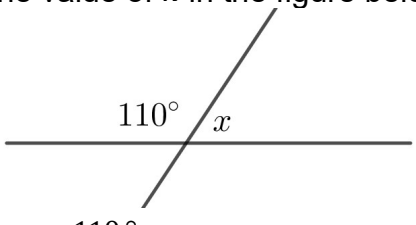


D



(1)

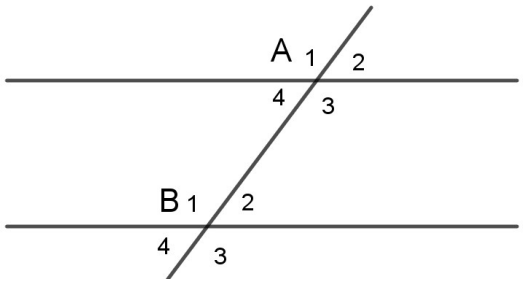
1.4. The value of x in the figure below is . . .



A $110°$
B $70°$
C $270°$
D $160°$

(1)

1.5. Which statement is TRUE about the figure?



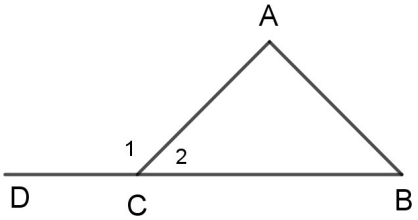
A $\hat{A}_1 = \hat{B}_1 (\text{Corresp. } \angle s, /\!/ \textit{lines})$

B $\hat{A}_1 = \hat{B}_3 (\text{Ext. alt } \angle s, /\!/ \textit{lines})$

C $\hat{A}_1 = \hat{A}_3 (\text{Vert opp } \angle s)$

D $\hat{A}_1 + \hat{A}_2 = 180° (\text{co-int } \angle s)$ (1)

1.6. Complete: If ΔABC is an **equilateral triangle**, the size of $\hat{C}_1$ is …



A 180°

B 100°

C 60°

D 120° (1)

1.7. A quadrilateral is a . . .

A One sided polygon

B Two sided polygon

C Three sided polygon

D Four sided polygon (1)

1.8. Which of the following is TRUE about a kite?

A Diagonals are equal

B Diagonals bisect each other

C The shorter diagonal bisects the longer diagonal at 90°

D The longer diagonal bisects the shorter diagonal at 90° (1)

1.9. Which of the following is NOT a property of congruency?

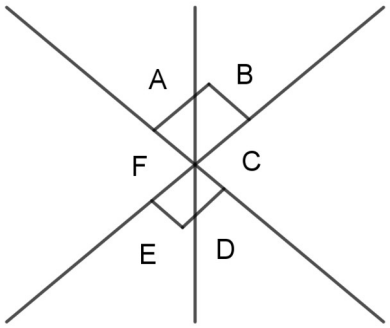
A Side, Side, Side (S, S, S)

B Side, Angle, Side (S, $\angle$, S)

C Angle, Angle, Side ($\angle$,$\angle$, S)

D Angle, Angle, Angle ($\angle$,$\angle$,$\angle$) (1)

1.10. Consider the figure below:

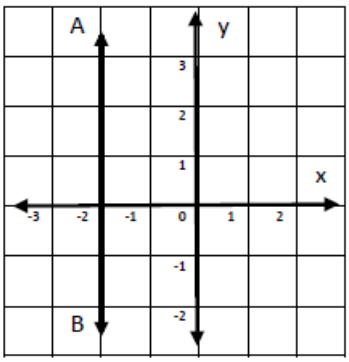


Which angles are **supplementary**?

A $\hat{A}$ and $\hat{B}$
B $\hat{B}$ and $\hat{C}$
C $\hat{F}$ and $\hat{C}$
D Answers A and B are both correct (1)

QUESTION 2 **[11]**

2.1. Determine the equation of the straight line AB.



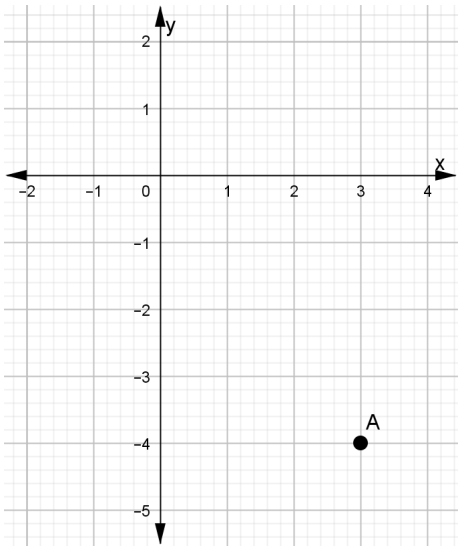
(1)

2.2. Complete the following table.

Equation	Gradient	Y-intercept
$y=-4x+5$	2.2.1.	2.2.2

(2)

2.3. Determine the co – ordinates of A



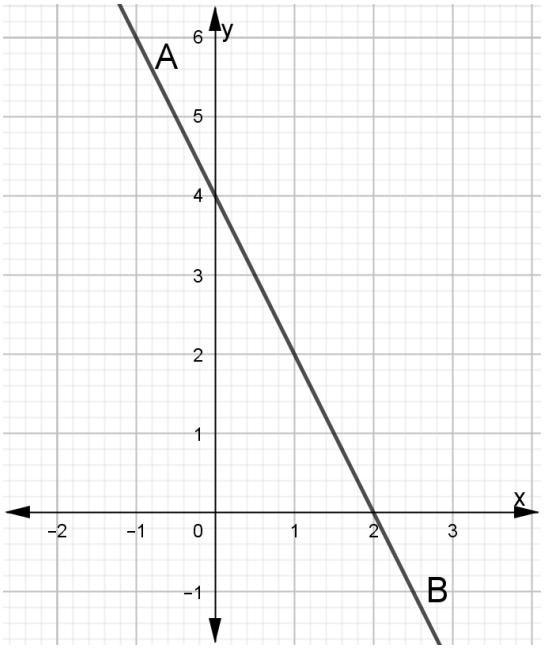
(1)

2.4. Consider the table given below.

x	-3	-2	-1	0	1	2	3
y	-5	-3	-1	1	3	5	7

Using the table of ordered pairs, sketch the straight line on a Cartesian plane, showing both intercepts. (3)

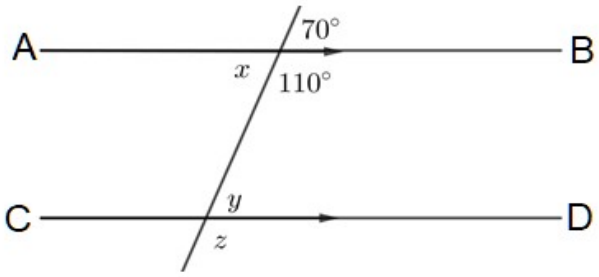
2.5. Consider the straight line below.



2.5.1 Determine the gradient of the line AB. (2)
2.5.2 Hence, determine the equation of the line AB. (2)

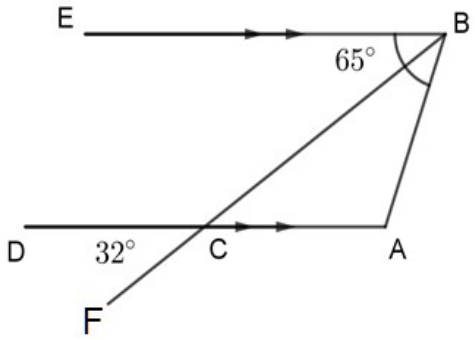
QUESTION 3 **[10]**

3.1. Calculate giving reasons the sizes of x, y and z.



(6)

3.2. In the diagram below, $A\hat{B}E=65°$ and $D\hat{C}F=32°$.

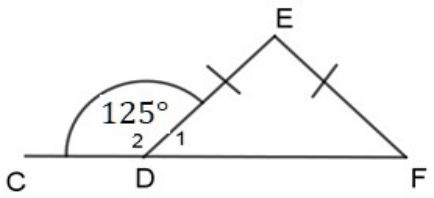


3.2.1 Calculate the size of $E\hat{B}C$. Give reasons for your answer. (2)

3.2.2 Calculate the size of $C\hat{A}B$. Give reasons for your answer. (2)

QUESTION 4 **[19]**

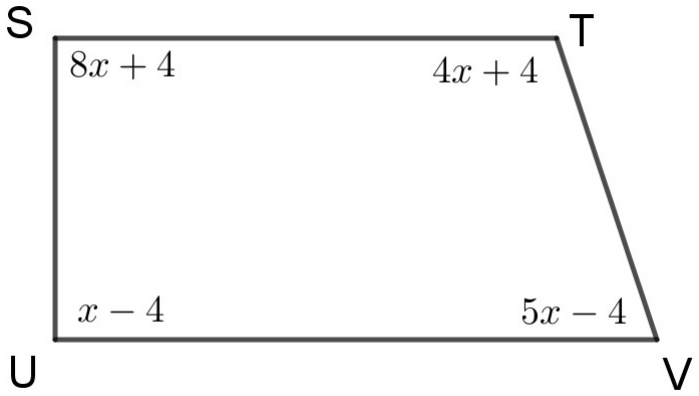
4.1. In ΔEDF , FD is produced to C. $ED=EF$ and $C\hat{D}E=125°$. Follow the sequence of steps to calculate the size of $\hat{E}$.



STATEMENT	REASON
$\hat{D}_1+\hat{D}_2=¿$.....(**4.1.1.**)	**4.1.2**
$\hat{D}_1=¿$ .....(**4.1.3**)	
$\hat{D}_1=\hat{F}$	**4.1.4**
$\hat{E}+\hat{F}+\hat{D}_1=¿$.....(**4.1.5**)	Sum of $\angle$s in ΔEDF
$\therefore \hat{E}=¿$.....(**4.1.6**)	

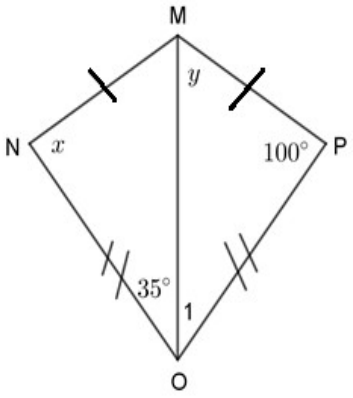
(6)

4.2. In the diagram below, STVU is a quadrilateral with angles in terms of x.



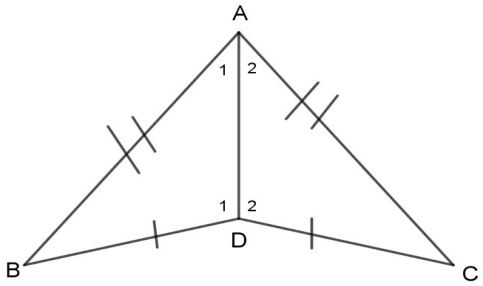
Calculate, giving reasons the value of x. (3)

4.3. NMPO is a kite with $NM=PM$, $NO=PO$ and diagonal MO bisects $N\widehat{O}P \wedge N\widehat{M}P$. Determine giving reasons, the values of x and y.



(4)

4.4. In the diagram below, $AB=AC$ and $BD=CD$.

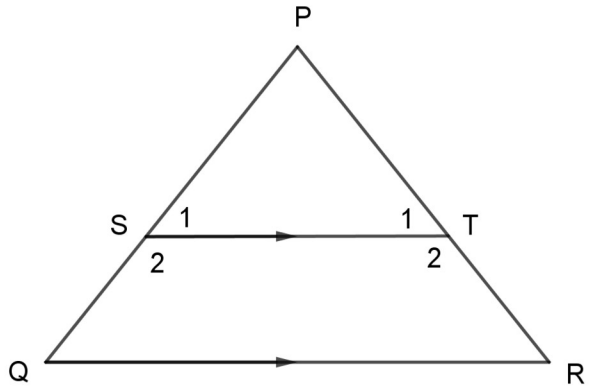


Prove that $\Delta ADB \equiv \Delta ADC$.
(**Only complete the missing items**)

STATEMENT	REASON
In ΔADB and ΔADC,	
$AD=AD$	4.4.1
$AB=AC$	Given sides
$BD=CD$	Given sides
$\therefore\ \Delta ADB \equiv \Delta ADC$	4.4.2

(2)

4.5. In $\Delta PQR, ST \parallel QR$.



Prove with reasons that $\Delta PST \vee ¿ \vee \Delta PQR$. (4)

TOTAL = 50

Name:_____

Grade: 9

School:_____

2.4 Draw the graph using a pencil