KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GENERAL EDUCATION AND TRAINING (GET)

GRADE 9

MATHEMATICS

2024 UGU DISTRICT CONTROLLED TEST

TERM 3

NAME OF SCHOOL: _____

LEARNER NAME: _____

MARKS OBTAINED _____%

DURATION: $1\frac{1}{2}$ **HOURS**

MARKS: 75

Instructions to candidates

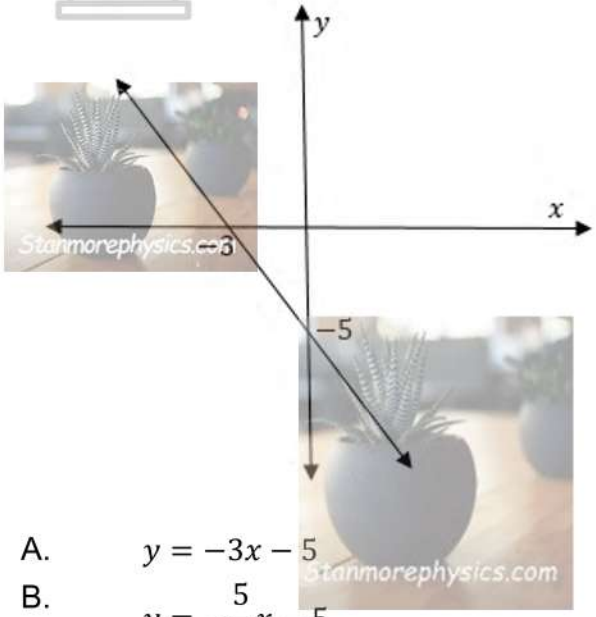
1. This paper consists of **TWO** sections, A and B.
2. Section A items are multiple choice type (MCQ). In order to respond to items in this section, you have to circle the letter corresponding to the correct answer.
3. Section B items are open ended and free response question types. **Use the spaces provided to respond to items in this section.**
4. NB. This question paper consists of **15 pages including the cover page.**

SECTION A

QUESTION 1

Answer the following questions by choosing the correct answer. **Circle the letter next to the correct answer.**

1.1 Which of the following equations describe the following graph? (1)



A. $y = -3x - 5$

B. $y = -\frac{5}{3}x - 5$

C. $y = \frac{5}{3}x - 5$

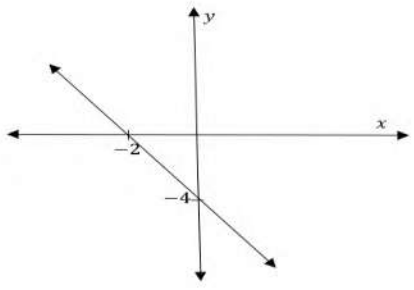
D. $y = \frac{5}{3}x$

1.2 Given the table below: (1)

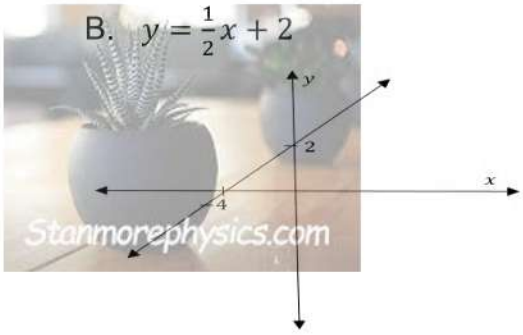
x	-2	-1	0	1	2
y	0	2	4	6	8

The equation and the graph that best describe the relationship between x and y in the table is:

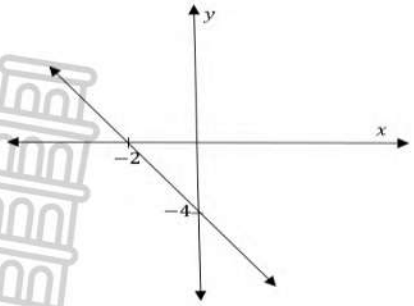
A. $y = 2x + 4$



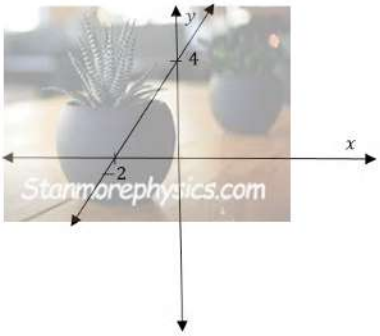
B. $y = \frac{1}{2}x + 2$



C. $y = -2x - 4$

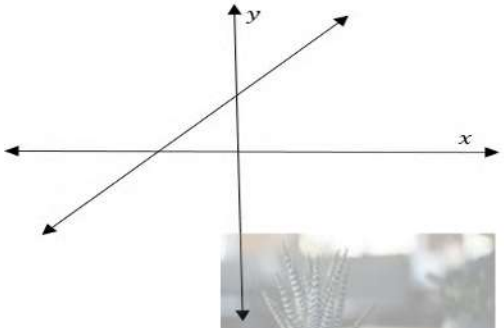


D. $y = 2x + 4$

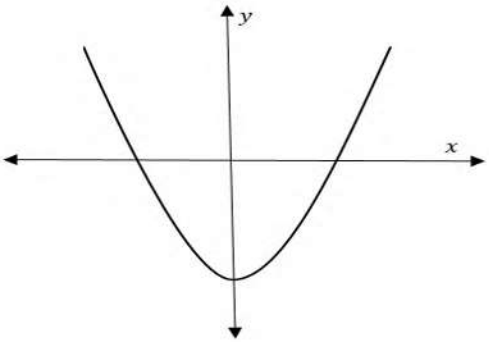


1.3 Which graph in the following graphs is not a linear graph? (1)

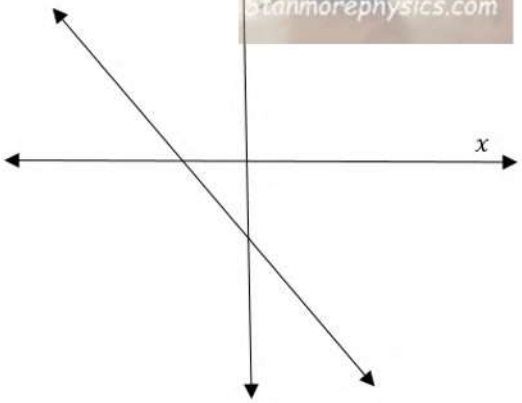
A.



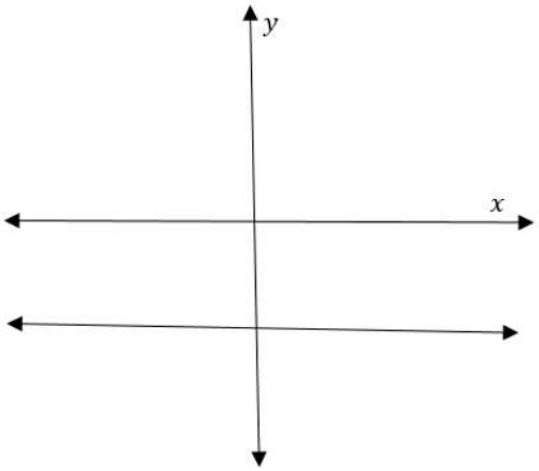
B.



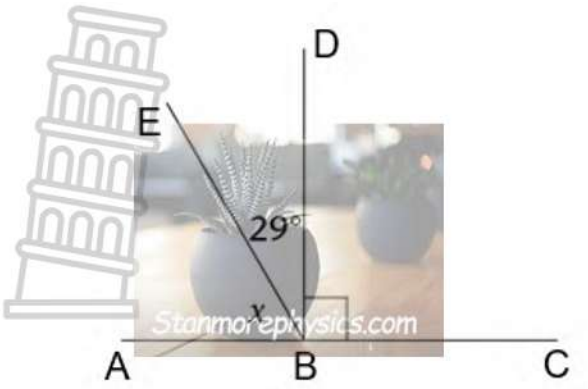
C.



D.



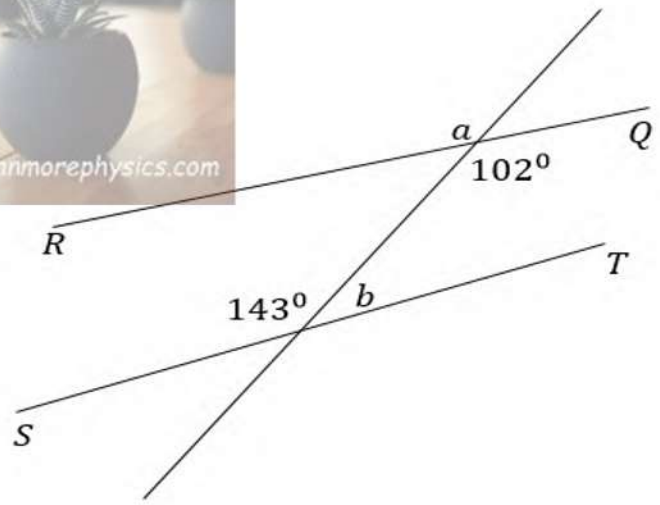
1.4 Given the following diagram: (1)



The following is the value of x with its suitable reason

A. $x = 29^0$ [EB bisects angle ABD]
B. $x = 90^0$ [angles on a straight line]
C. $x = 119^0$ [angles on a straight line]
D. $x = 61$ [Complementary angles (DB perpendicular to ABC)]

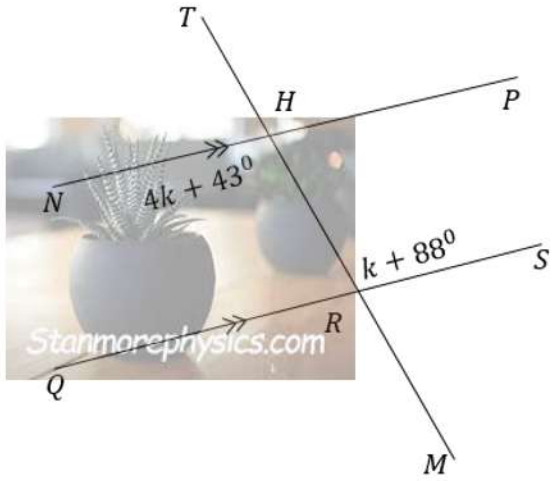
1.5 Consider the diagram below: (1)



Determine the values of a & b.

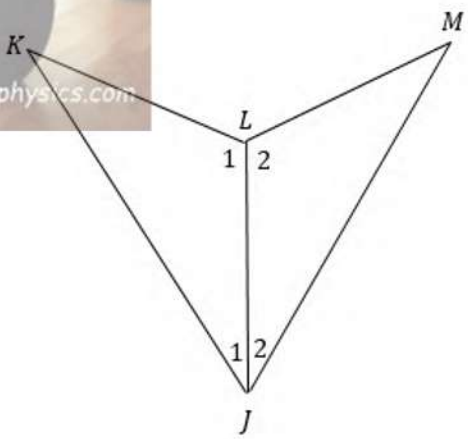
A. $a = 37^0$ & $b = 102^0$
B. $a = 102^0$ & $b = 78^0$
C. $a = 102^0$ & $b = 37^0$
D. $a = 143^0$ & $b = 78^0$

1.6 Calculate the value of k and the size $T\hat{H}N$. (1)



A. $k = 15^0$ & $T\hat{H}N = 77^0$
B. $k = 15^0$ & $T\hat{H}N = 103^0$
C. $k = 10^0$ & $T\hat{H}N = 83^0$
D. $k = 10^0$ & $T\hat{H}N = 97^0$

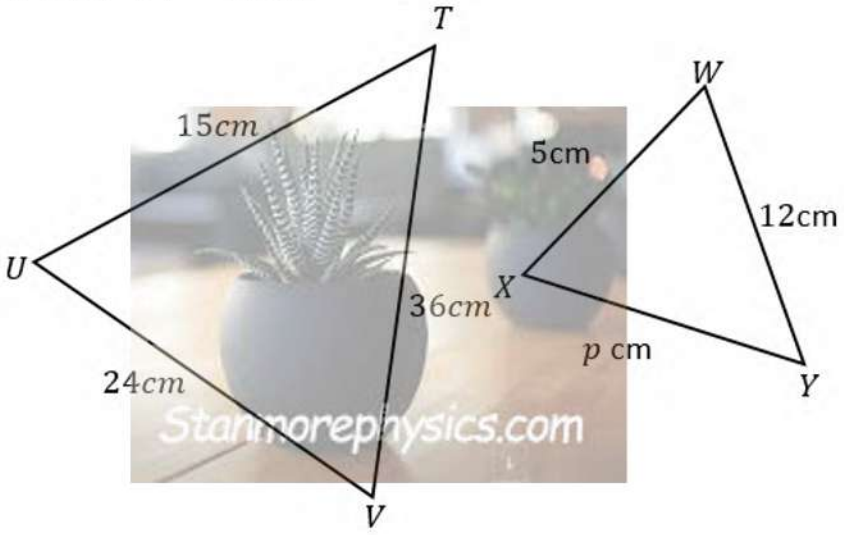
1.7 In the diagram below, $\hat{J}_1 = \hat{J}_2$ and $\hat{K} = \hat{M}$. (1)



Which statement best describes the relationship between ΔJKL & ΔJML

A. $\Delta JKL \equiv \Delta JML$ $(\angle\angle\angle)$
B. $\Delta JKL \,|||\, \Delta JML$ $(\angle\angle s)$
C. $\Delta JKL \equiv \Delta JML$ $(\angle\angle s)$
D. $\Delta JKL \,|||\, \Delta JML$ $(s\angle s)$

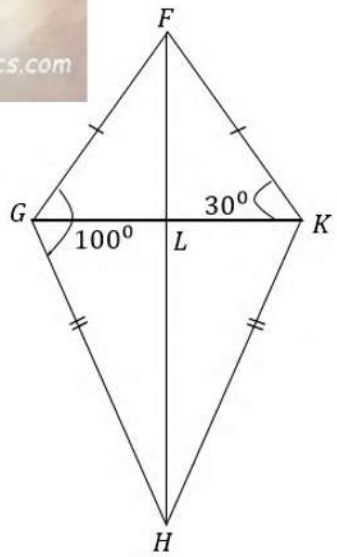
1.8 In the diagram below: ΔTUV ||| ΔWXY $TU = 15cm, UV = 24cm, TV = 36cm, WX = 5\ cm, XY = p\ cm$ and $WY = 12\ cm$. (1)



Determine the value of p

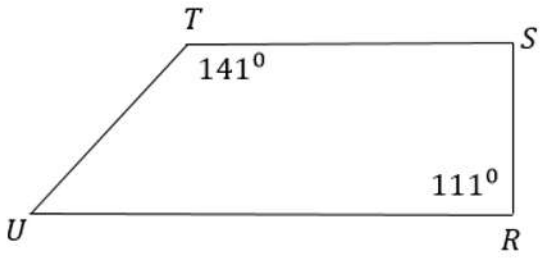
A. $p = 24$
B. $p = 15$
C. $p = 8$
D. $p = 6$

1.9 Given that FGHK is a kite and $GK = 20cm$. Determine the length of GL. (1)



A. $GL = 20\ cm$
B. $GL = 10\ cm$
C. $GL = 5\ cm$
D. $GL = 40\ cm$

1.10 Diagram TURS below is a trapezium with $T = 141^0$ & $R = 111^0$. (1)

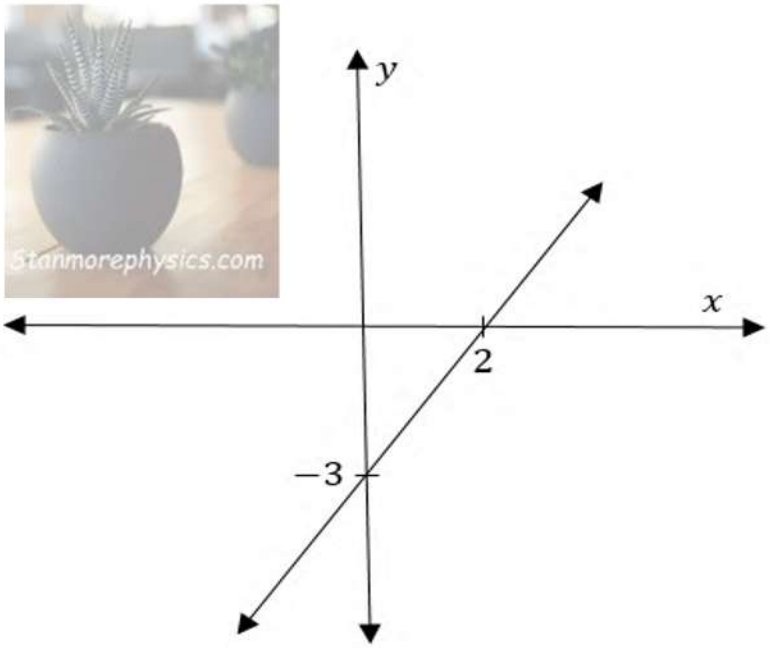


Calculate the size of $\hat{S}$ & $\hat{U}$.

A. $\hat{S} = 69^0$ & $\hat{U} = 39^0$
B. $\hat{S} = 39^0$ & $\hat{U} = 69^0$
C. $\hat{S} = 141^0$ & $\hat{U} = 111^0$
D. $\hat{S} = 69^0$ & $\hat{U} = 69^0$

QUESTION 2

2.1 Given the graph below:



2.1.1 Write down the co-ordinates of x –and y – intercept of the graph. (2)

_____

_____

2.2 Determine the gradient of the graph in 2.1. (3)

_____

_____

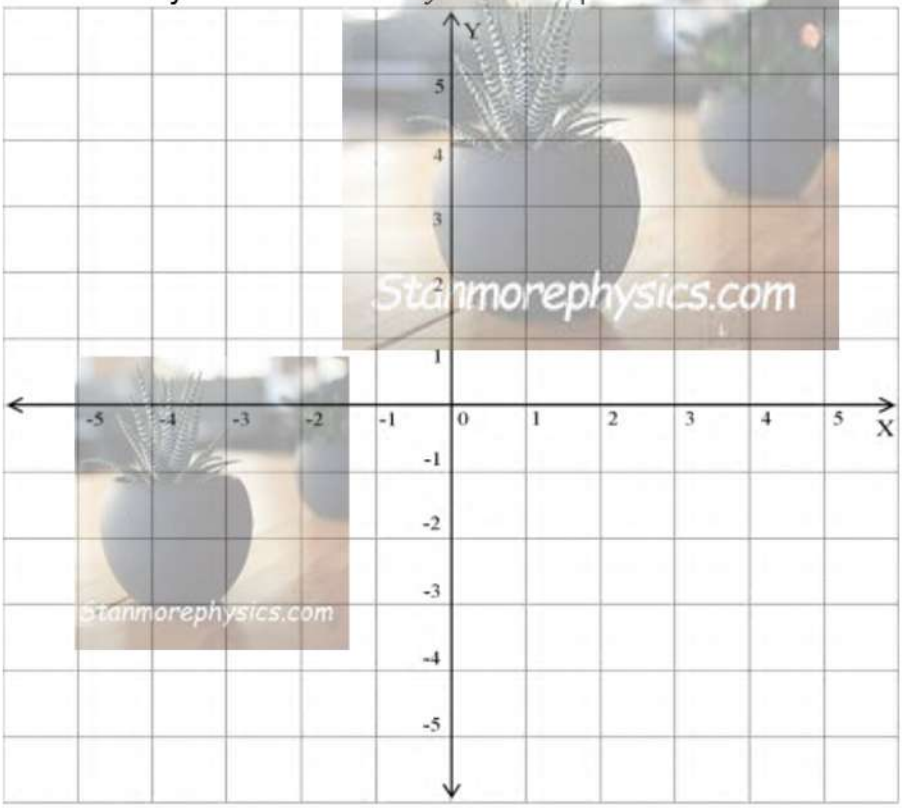
_____

2.3 Given the equation: $y = -x + 2$

2.3.1 Complete the table below: (2)

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

2.3.2 Use the points from the table in 2.3.1. to draw the graph in the Cartesian plane provided. Clearly indicate x –and y – intercepts with the axis. (2)

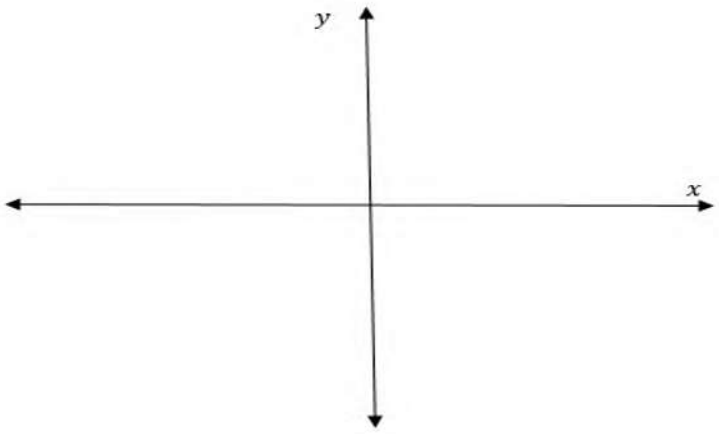


2.4. Given the equation that describes a certain graph: $5y - 25x = -5$

2.4.1. Write down the equation in the form $y = \ldots$ (1)

_____

2.4.2. Use the equation in 2.4.1. to sketch the graph. Clearly indicate ALL intercepts with axes. (3)

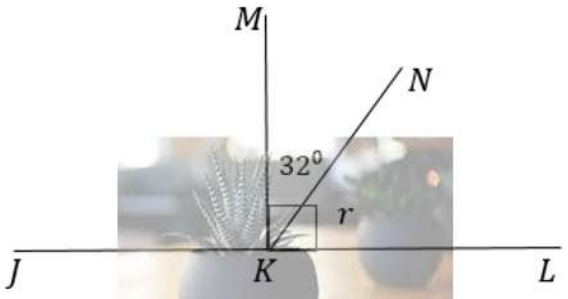


2.5 Two points $(-2; 4)$ & $(3; \frac{5}{2})$ lie on the same linear/straight line graph. Determine the equation of the graph. Show ALL the workings. (4)

[17]

QUESTION 3

3.1 Given the diagram below

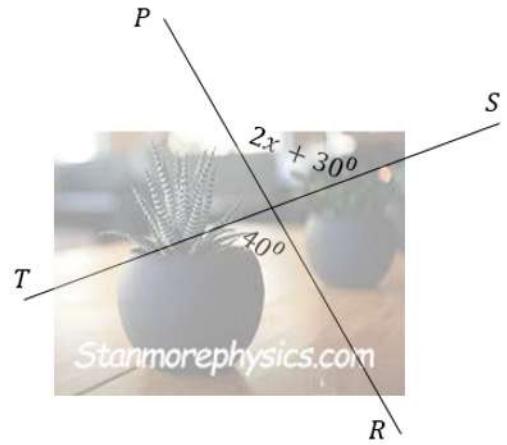


Calculate, giving suitable reason, the size of r.

STATEMENT	REASON

(2)

3.2 Consider the diagram below:

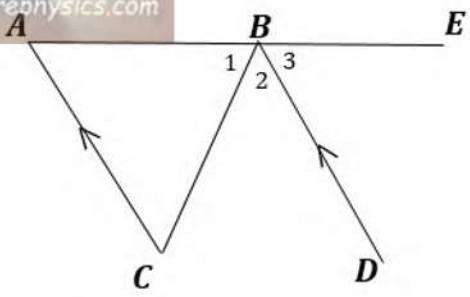


Solve for x **giving suitable reasons**.

STATEMENT	REASON

(3)

3.3 In the diagram below: $AC//BD$ and $\hat{B}_2 = \hat{B}_3$.

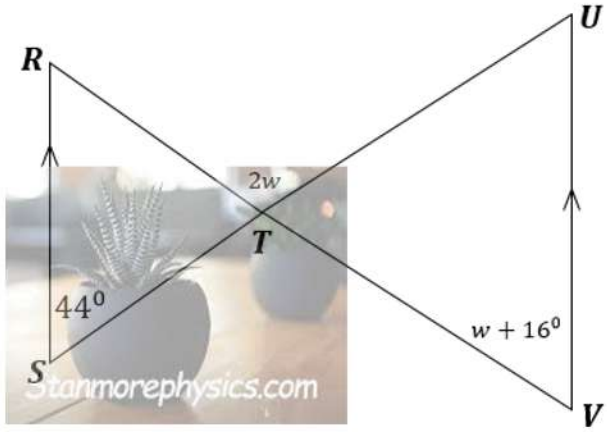


Prove **giving suitable reasons** that $A\hat{C}B = \hat{B}_3$. The first statement has been made.

STATEMENT	REASON
$A\hat{C}B = \hat{B}_2$	

(3)

3.4 In the diagram below: $RS // UV$; $RST = 44^0$; $RTU = 2w$ and $T\hat{V}U = w + 16^0$

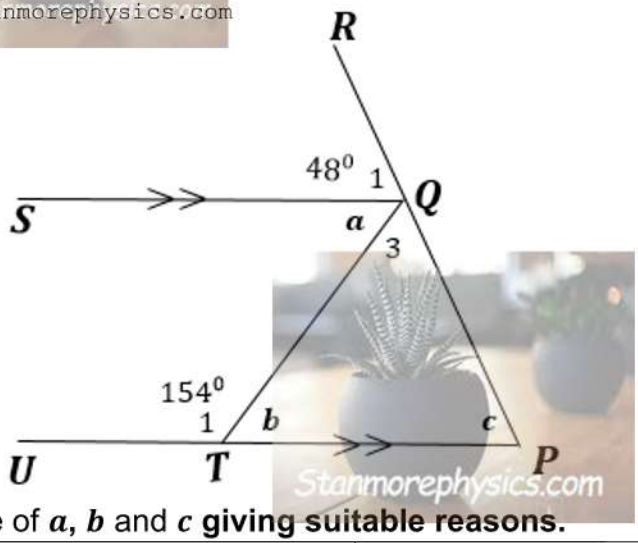


Solve for w, **giving suitable reasons**.

STATEMENT	REASON

(5)

3.5 In the diagram below: $\hat{Q}_1 = 48^0$, $\hat{T}_1 = 154^0$, $\hat{Q}_2 = a$, $\hat{T}_2 = b$ and $R\hat{P}U = c$



Determine the value of a, b and c **giving suitable reasons.**

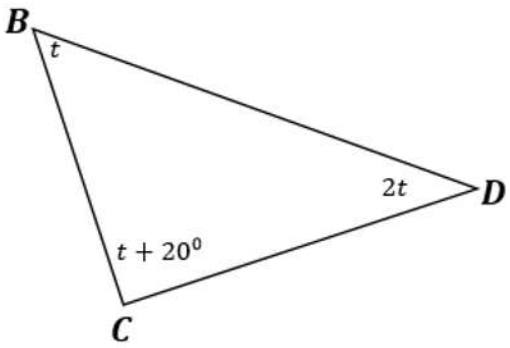
STATEMENT	REASON

(5)

[18]

QUESTION 4

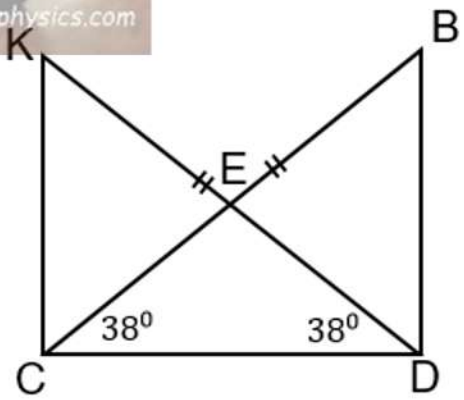
4.1. Solve for t **giving suitable reasons** in the following diagram.



STATEMENT	REASON

(4)

4.2. Given the diagram below: $KD = CB$, $K\hat{D}C = 38^0$ and $B\hat{C}D = 38^0$

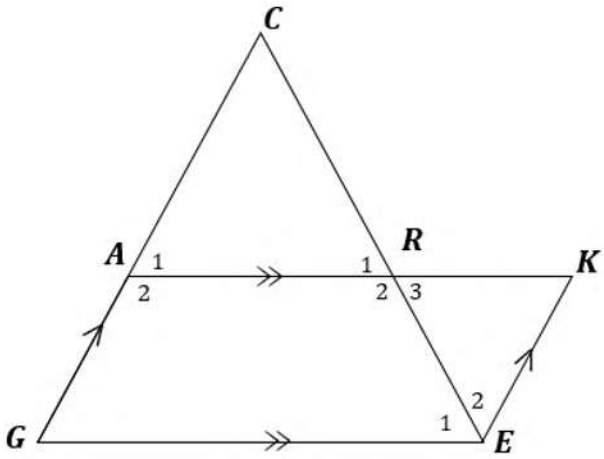


Prove giving **suitable reasons** that $\hat{K} = \hat{B}$

STATEMENT	REASON

(4)

4.3. In the following diagram: $CG//KE$ and $AK//GE$.



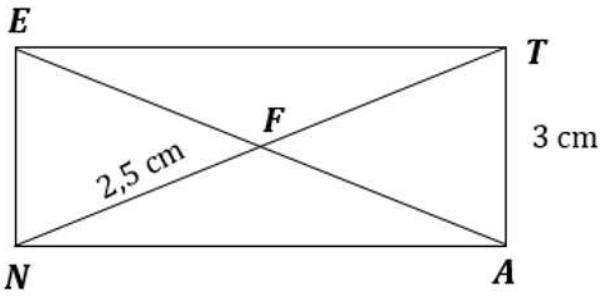
Prove **giving suitable reasons** that $\Delta CRA \;|||\; \Delta ERK$

In $\Delta CRA \;\&\; \Delta ERK$

STATEMENT	REASON
 ∴	

(5)

4.4. ENAT below is rectangle. Diagonal EA and NT intersect at F. $NF = 2{,}5cm$ and $TA = 3cm$.

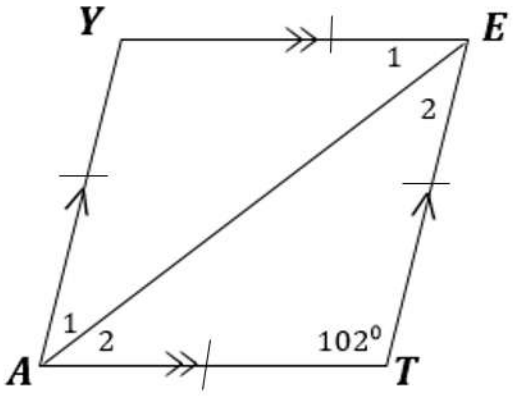


Calculate the length of NA

STATEMENT	REASON

(5)

4.5. YATE is a rhombus with $\hat{T} = 102^0$.



Calculate with suitable reasons the size of:

4.5.1. $Y\hat{E}T$

STATEMENT	REASON

(2)

4.5.2. $\widehat{E_2}$

STATEMENT	REASON

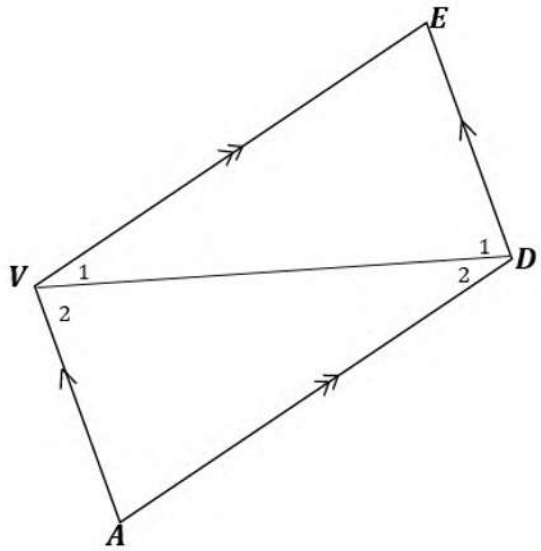
(2)

4.5.3. $\widehat{A_1}$

STATEMENT	REASON

(1)

4.6. In the diagram below VADE is a parallelogram.

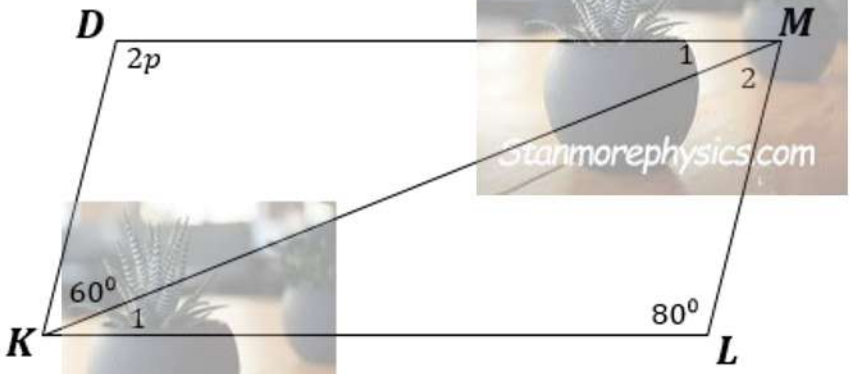


Prove that $\Delta EVD \equiv \Delta ADV$ by completing the table below.

In ΔEVD & ΔADV (3)

STATEMENT	REASON
$\widehat{V_1} = \widehat{D_2}$	$alt.\angle's, VE \parallel AD$
$VD = VD$	_____
_____ $\therefore \Delta EVD \equiv \Delta ADV$	$alt.\angle's, ED \parallel VA$ _____

4.7. DKLM is a parallelogram. $\widehat{D} = 2p$, $D\widehat{K}M = 60^0$ and $M\widehat{L}K = 80^0$



4.7.1. Determine the size of $\widehat{M_2}$ (1)

STATEMENT	REASON

4.7.2. Solve for p (3)

STATEMENT	REASON

[30]

GRAND TOTAL: 75 MARKS

KWAZULU-NATAL PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GENERAL EDUCATION AND TRAINING (GET)

GRADE 9

MATHEMATICS

2024 UGU DISTRICT CONTROLLED TEST

TERM 3

MARKING GUIDELINES

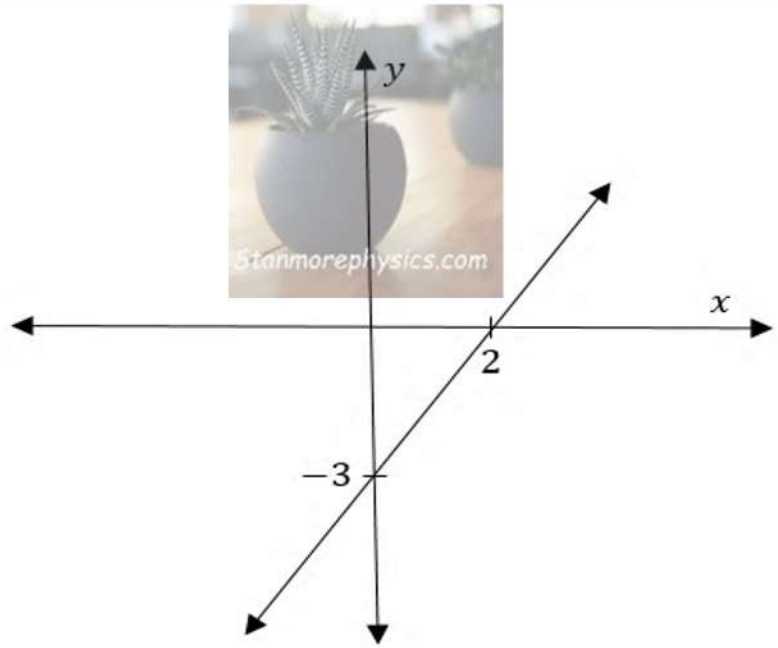
MARKS: 75

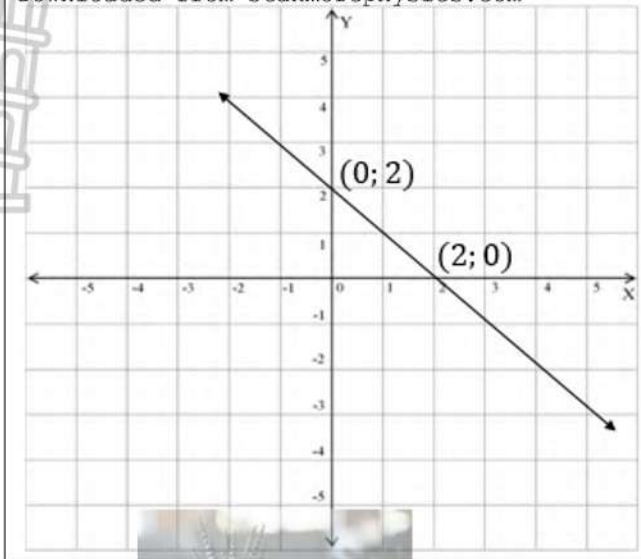
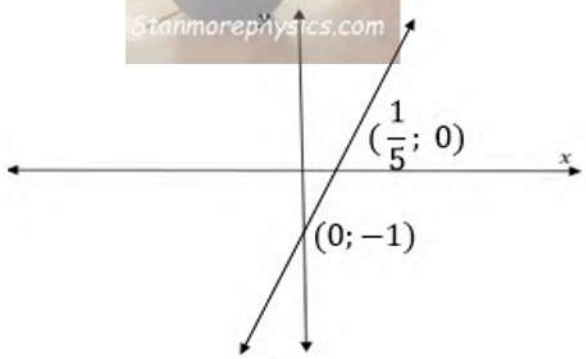
This marking guidelines consists of 9 pages

QUESTION 1

1.1.	B	✓ (Answer)	(1)
1.2.	A	✓ (Answer)	(1)
1.3.	B	✓ (Answer)	(1)
1.4.	D	✓ (Answer)	(1)
1.5.	C	✓ (Answer)	(1)
1.6.	A	✓ (Answer)	(1)
1.7	C	✓ (Answer)	(1)
1.8	C	✓ (Answer)	(1)
1.9.	B	✓ (Answer)	(1)
1.10.	A	✓ (Answer)	(1)
			[10]

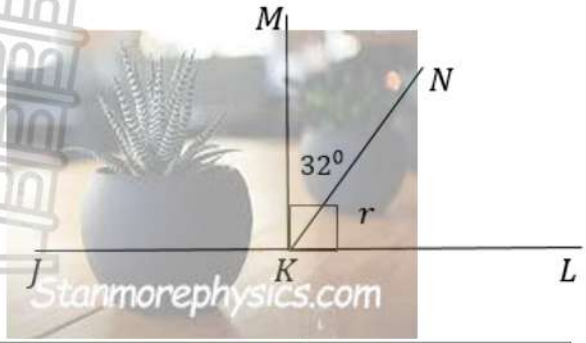
QUESTION 2

2.1				
	2.1.1.	$x-intercept-(2\,;0)$ $y-intercept-(0\,;-3)$	$(2\,;0)$ ✓ $(0\,;-3)$ ✓	(2)
2.2.	$m=\frac{y2-y1}{x2-x1}$ $m=\frac{-3-0}{0-2}$ $m=\frac{3}{2}$		$m=\frac{y2-y1}{x2-x1}$ ✓ $m=\frac{-3-0}{0-2}$ ✓ $m=\frac{3}{2}$ ✓	(3)
2.3.				

	2.3.1.	x | -3 | -2 | -1 | $\underline{0}$ | 1 | 2 | 3 y | 5 | $\underline{4}$ | 3 | 2 | 1 | 0 | -1	3✓ 4✓	(2)
	2.3.2.		x –and y – intercepts ✓ Shape ✓	(2)
2.4.	$5y - 25x = -5$			
	2.4.1.	$y = 5x - 1$	$y = 5x - 1$✓	(1)
	2.4.2.		$x - intercept$✓ y – intercepts ✓ Shape ✓	(3)
2.5.	$m = \frac{\frac{3}{2} - 4}{3 - (-2)}$ $m = -\frac{1}{2}$ $y = -\frac{1}{2}x + c$ $4 = -\frac{1}{2}(-2) + c$ $c = 3$ $therefore \quad y = -\frac{1}{2}x + 3$		$m = -\frac{1}{2}$✓ $4 = -\frac{1}{2}(-2) + c$ subst. a point ✓ c = 3✓ $y = -\frac{1}{2}x + 3$✓	(4)
				[17]

QUESTION 3

3.1.

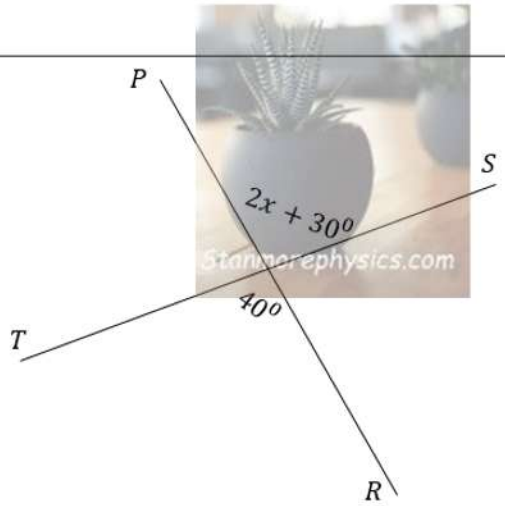


STATEMENT	REASON
$r + 32^0 = 90^0$ $r = 58^0$	Complementary angles MK is pep. JL

$r = 58^0$ ✓ Reason✓

(2)

3.2.

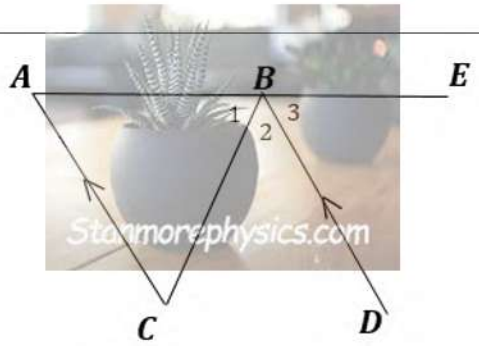


STATEMENT	REASON
$2x + 30^0 = 40^0$ $2x = 10^0$ $x = 5^0$	Vertical opp. Angles.

$2x + 30^0 = 40^0$ ✓
Reason ✓
$x = 5^0$ ✓

(3)

3.3.

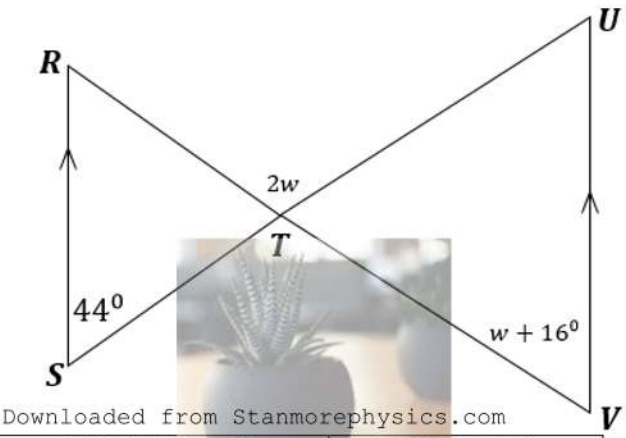


(3)

STATEMENT	REASON
$A\hat{C}B = \hat{B}_2$	[Alt. Angles AC//BD]
$\hat{B}_2 = \hat{B}_3.$	Given
$Therefore\ A\hat{C}B = \hat{B}_3.$	Both $=\hat{B}_2$

$A\hat{C}B = \hat{B}_2$✓
$\hat{B}_2 = \hat{B}_3.$ ✓
Both $=\hat{B}_2$✓

3.4.



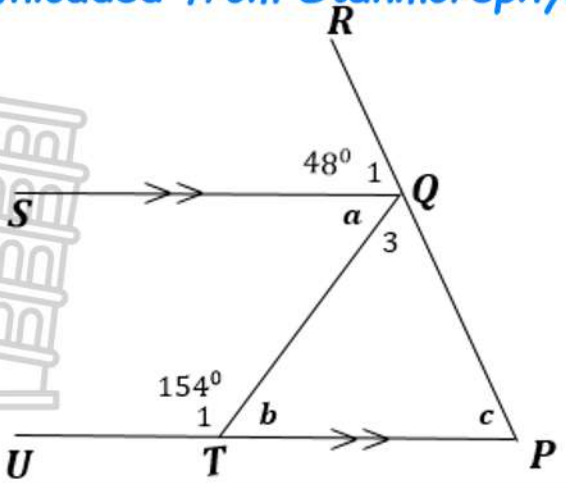
STATEMENT	REASON
$2w + R\hat{T}S = 180$	Angles on str. Line
$R\hat{T}S = 180 - 2w$	
$S\hat{R}T = w + 16^0$	Alt. angles RS//UV
$180 - 2w + w + 16^0 + 44^0 = 180^0$	Sum of int. angles of a tri.
$-w = -60$	
$w = 60$	

Statement + Reas.✓
$R\hat{T}S = 180 - 2w$✓
Statement + Reas.✓
Statement + Reas.✓

$w = 60$✓

(5)

3.5.



STATEMENT	REASON
$c = 48^0$	[Corr. Angles SQ//UP]
$a + 154^0 = 180^0$ $a = 26^0$	[Co-int. angles SQ//UP]
$b = 26^0$	[Alt. angles SQ//UP]

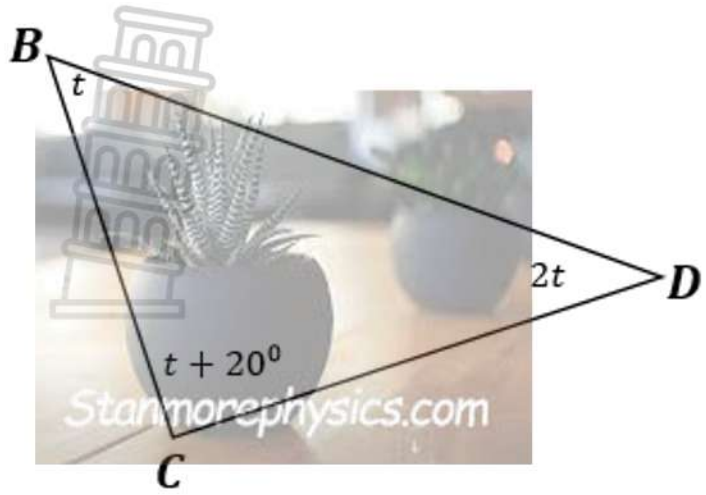
Statement + Reas.✓
Statement✓ Reas.✓
$a = 26^0$✓
Statement + Reas.✓

(5)

[18]

QUESTION 4

4.1.

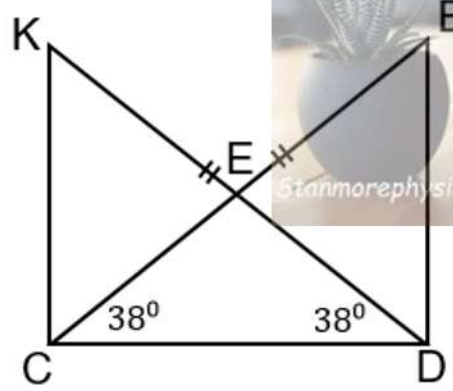


STATEMENT	REASON
$t + 2t + t + 20^0 = 180^0$ $4t = 160^0$ $t = 40^0$	Sum of int. angles of a triangle.

Statement✓reason ✓
$4t = 160^0$✓
$t = 40^0$ ✓

(4)

4.2.



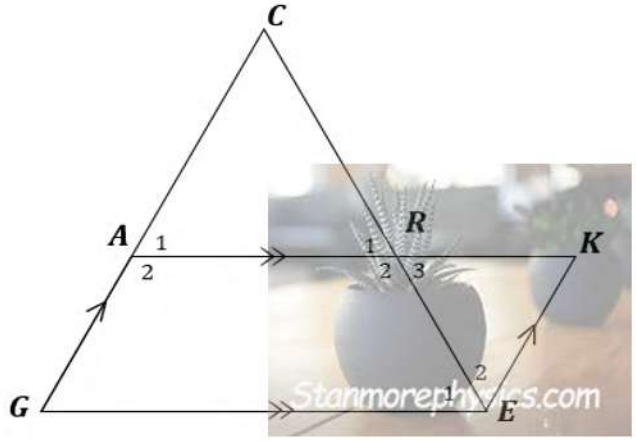
STATEMENT	REASON
In ΔKDC & ΔBCD $KD = BC$ $K\hat{D}C = B\hat{C}D$ CD=CD ∴ ΔKDC ≡ ΔBCD $\rightarrow \hat{K} = \hat{B}$	 Given Both $= 38^0$ or given Common SAS

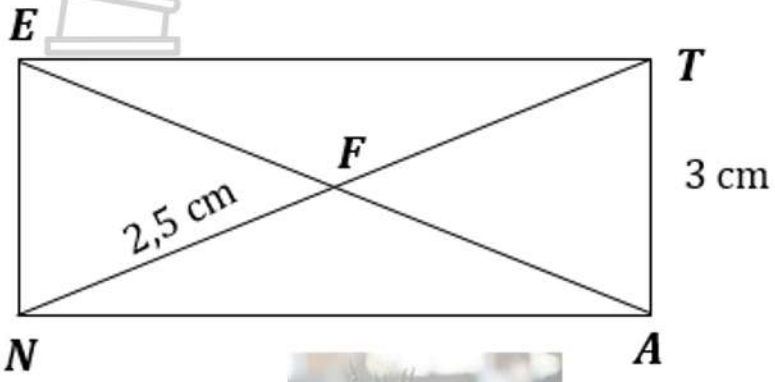
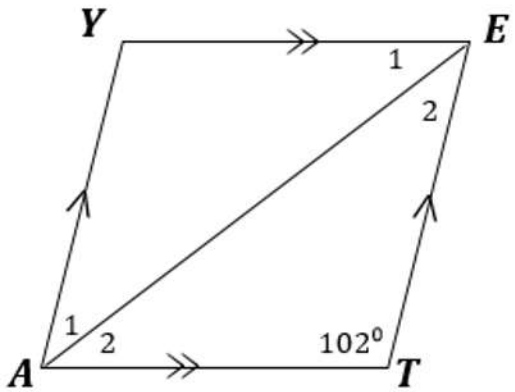
Statement + Reas.✓
Statement + Reas.✓
Statement + Reas.✓

$\rightarrow \hat{K} = \hat{B}$ ✓

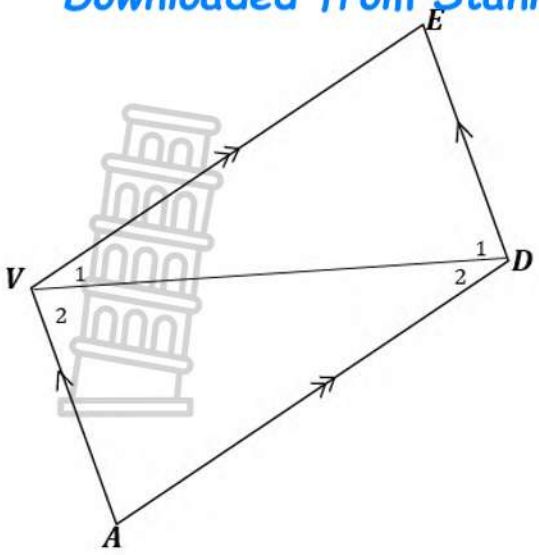
(4)

4.3.



	STATEMENT: In ΔCRA & ΔERK $\hat{C} = \widehat{E_2}$ $\widehat{R_1} = \widehat{R_3}$ $\widehat{A_1} = \widehat{K}$ $\therefore$ ΔCRA/// ΔERK REASON: [Alt angles. GC//KE] [Vert. opp. Angles] [Alt angles. GC//KE] [AAA]	Statement+reason ✓ Statement+ Reason ✓ Statement+reason ✓ ΔCRA/// ΔERK ✓ + Reason ✓	(5)
4.4	 **STATEMENT** / **REASON** $NF = FT = 2{,}5$ — Diagonal of a rectangle $NT = 5\ cm$ $NT^2 = NA^2 + TA^2$ — Pythagoras theorem $5^2 = NA^2 + 3^2$ $NA^2 = 5^2 - 3^2 \quad NA^2 = 16$ $NA = 4$	Statement+ Reason ✓ $NT = 5\ cm$✓ Pyth. Theorem ✓ Correct subst✓ $NA = 4$ ✓	(5)
4.5.			
	4.5.1. $Y\hat{E}T = 78$ [Co. int. angles YE//AT]	Statement✓ Reason ✓	(2)
	4.5.2. $\widehat{E_2} = 39^0$ [Prop of a rhombus]	Statement✓ Reason ✓	(2)
	4.5.3. $\widehat{A_1} = 39^0$ [Prop of a rhombus]	Statement+Reason ✓	(1)

4.6.



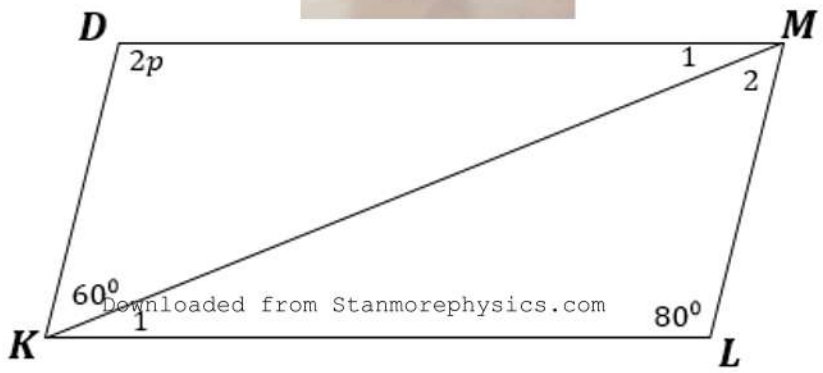
STATEMENT	REASON
$\widehat{V_1} = \widehat{D_2}$	$alt.\angle's, VE \parallel AD$
$VD = VD$	Common side
$\widehat{D_1} = \widehat{V_2}$ $\therefore \Delta EVD$ $\equiv \Delta ADV$	$alt.\angle's, ED \parallel VA$ ASA

Common side✓
$\widehat{D_1} = \widehat{V_2}$✓

ASA✓

(3)

4.7.



4.7.1.

STATEMENT	REASON
$M_2 = 60^0$	Alt. angles DK//ML

Statement + reason ✓

(1)

4.7.2.

STATEMENT	REASON
$2p = 80^0$ $p = 40^0$	Opp. angles of a parm.

Statement ✓ reason ✓
$p = 40^0$✓

(3)

[30]

[GRAND TOTAL: 75 MARKS]