



LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION

MOPANI WEST DISTRICT

GET BAND

GRADE 9

MATHEMATICS
QUESTION PAPER
TERM 3 2023

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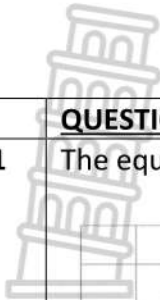
MARKS: 50

DATE: SEPTEMBER 2023

This question paper consists of seven(7) pages

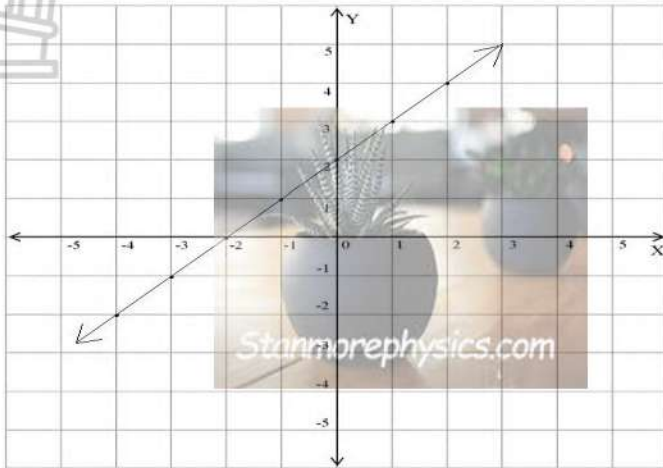
Instructions

1. This question paper consists of seven(7) pages including cover page.
 2. Read the questions carefully before answering.
 3. Answer ALL the questions.
 4. Show all your calculations.
-



QUESTION 1

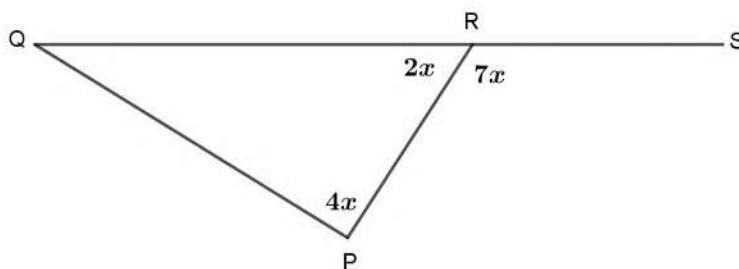
1.1 The equation of the straight line drawn below is:



- A $y = 2x - 2$
- B $y = x + 2$
- C $y = -2x + 2$
- D $y = -x - 2$

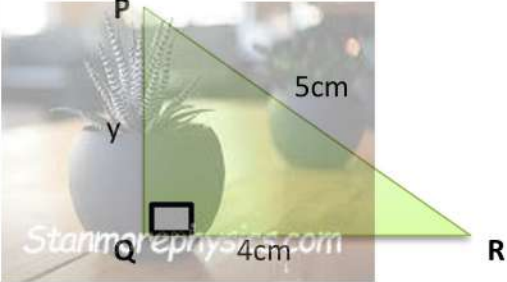
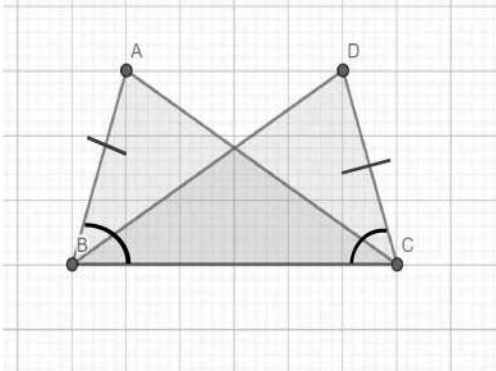
(2)

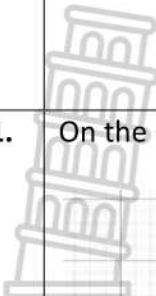
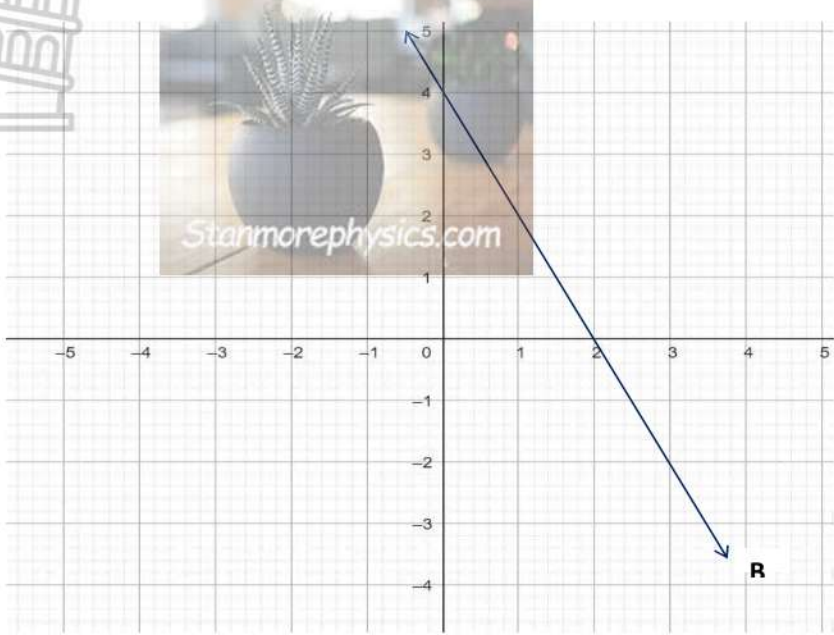
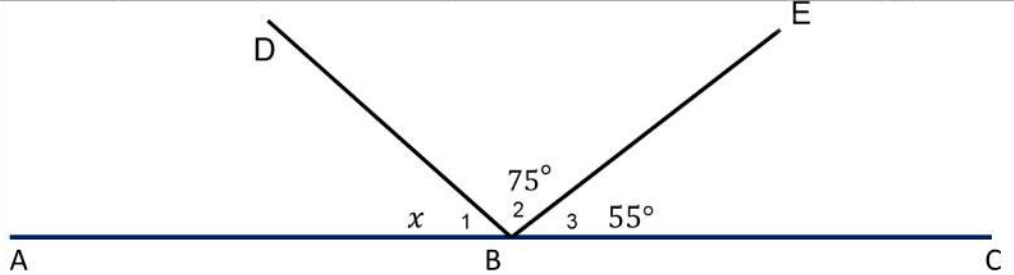
1.2. In ΔPQR , QR is extended to S
The size of $\angle Q$ is:

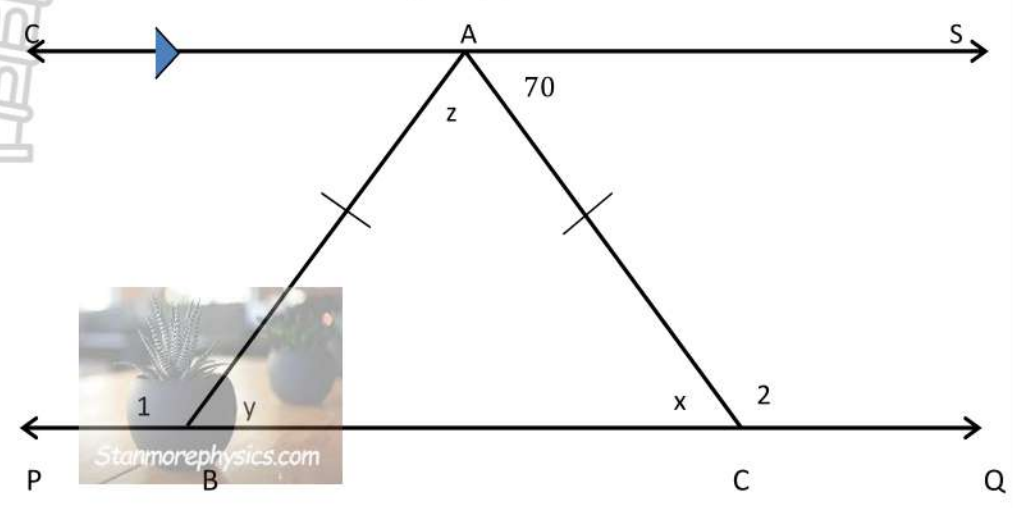
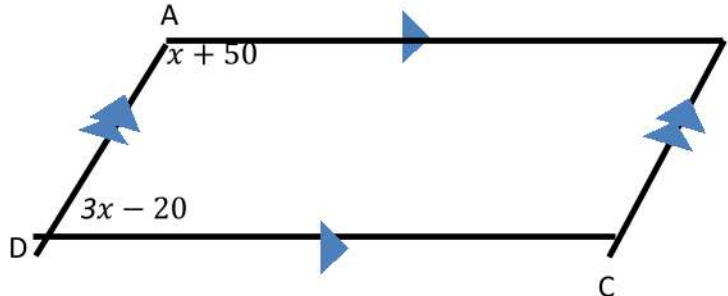
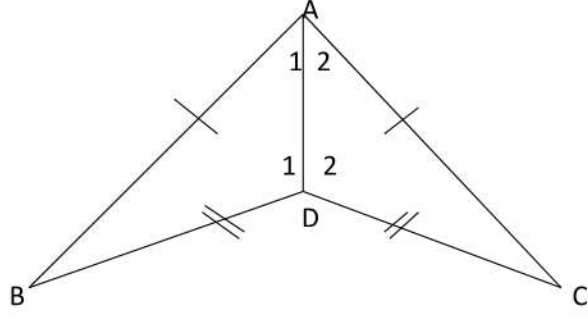


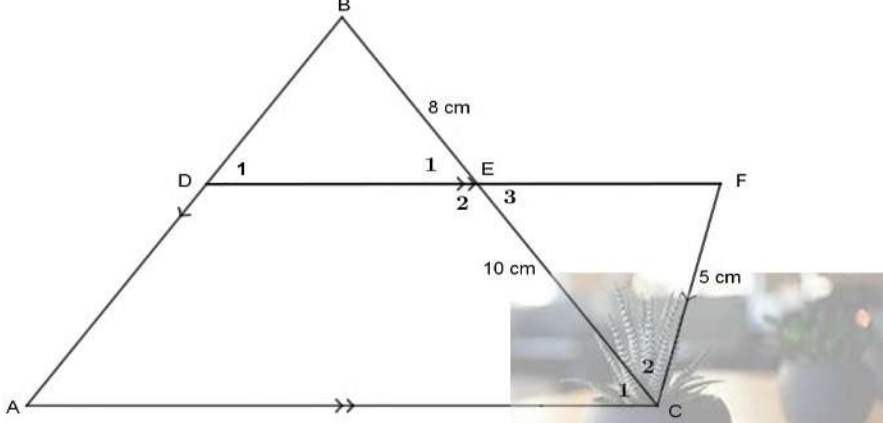
- A 40°
- B 20°
- C 140°
- D 60°

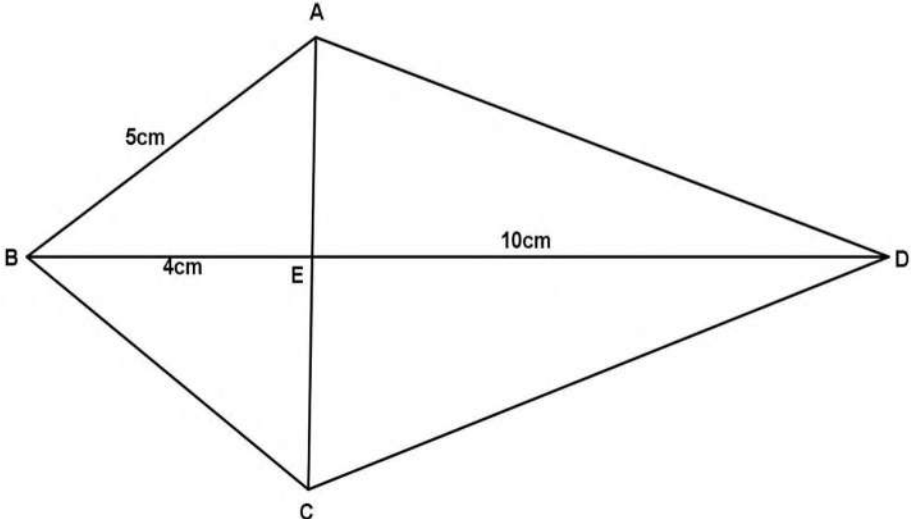
(2)

<p>1.3.</p>	<p>One of the properties of a Parallelogram is;</p> <ul style="list-style-type: none"> A All sides are equal B Diagonals bisect each other C Each angle is 90° D Diagonals are equal in length 	<p>(2)</p>
<p>1.4.</p>	<p>In the right – angled triangle below; the value of y is;</p>  <ul style="list-style-type: none"> A 9cm B 20cm C 3cm D 12cm 	<p>(2)</p>
<p>1.5.</p>	<p>Why is $\Delta BAC \cong \Delta BDC$?</p> 	<p>(2)</p>
	<ul style="list-style-type: none"> A S,S,S B 90°, H, S C S,A,S D A,A,S 	<p>(2)</p>
		<p>[10]</p>

		
<p>2.1.</p>	<p>On the Cartesian plane below, the graph $y = mx + c$ is shown.</p> 	
<p>2.1.1</p>	<p>Determine the values of the gradient m and the y- intercept c</p>	<p>(3)</p>
<p>2.1.2</p>	<p>On the ANNEXURE provided, draw the graph of the straight line represented by $y = -2x - 4$ (indicate all intercepts and label your graph CD)</p>	<p>(3)</p>
<p>2.1.3</p>	<p>What can you deduce about the two graphs, AB and CD? Give a reason for your answer.</p>	<p>(2)</p>
		<p>[8]</p>
<p>QUESTION 3</p>		
<p>3.1.</p>	<p>In the figure below, ABC is a straight line. Calculate the size of the angle x.</p>	
		<p>(3)</p>

<p>3.2.</p>	<p>In the figure below, $CS \parallel PQ$, $AB = AC$ and $\widehat{CAS} = 70^\circ$. Calculate WITH REASONS the size of the angles x, y and z.</p> 	<p>(6)</p>
<p>3.3.</p>	<p>ABCD is a parallelogram.</p>	
		
<p>3.3.1</p>	<p>Calculate the value of x</p>	<p>(3)</p>
<p>3.3.2</p>	<p>Determine the size of angle</p>	<p>(2)</p>
<p>3.4.</p>	<p>In the figure below, $AB = AC$ and $BD = DC$.</p> 	

3.4.1	Prove that $\triangle ABD \equiv \triangle ACD$.	(4)
3.4.2	Hence, prove that AD bisects \hat{BAC}	(1)
		[19]
QUESTION 4		
4.1	In the diagram below, $AC \parallel DF$, $AB \parallel CF$, $BE = 8$ cm, $EC = 10$ cm and $CF = 5$ cm.	
		
4.1.1	Prove that $\triangle DBE \parallel \triangle FCE$	(4)
4.1.2	Hence, determine the length of DB.	(3)
		[7]

QUESTION 5		
5.1.	A diagram of a kite, ABCD with $AB = 5\text{ cm}$, $BE = 4\text{ cm}$, and $DE = 10\text{ cm}$, is given below.	
	 <p>The diagram shows a kite ABCD with vertices A at the top, C at the bottom, B on the left, and D on the right. Diagonals AC and BD intersect at point E. Side AB is labeled 5cm. Segment BE is labeled 4cm. Segment DE is labeled 10cm.</p>	
5.1.1	Complete this statement; Diagonals of a kite intersect at an angle of ^o	(1)
5.1.2	Calculate the length of AE.	(3)
5.1.3	Calculate, with a reason, the length of the diagonal AC.	(2)
		[6]
TOTAL = 50 marks		



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MATHEMATICS

MEMORANDUM

TERM 3 2023

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MARKS: 50

DATE : SEPTEMBER 2023

This MEMORANDUM consists of five(5) pages

Instructions

1. This MEMORANDUM consists of **five(5)** pages including cover page.

	QUESTION 1	
1.1.	A ✓✓	
1.2.	A ✓✓	
1.3.	B ✓✓	
1.4.	C ✓✓	
1.5.	C ✓✓	
		[10]
	QUESTION 2	
2.2.1.	$m = \frac{\Delta y}{\Delta x}$ $= \frac{-4}{2} \checkmark$ $= -2 \checkmark$ $c = 4 \checkmark$	(3)
2.1.2.		(3)
2.1.3.	The lines are parallel to each other ✓. The gradients of the two lines are the same. ✓	(2)
		[8]

QUESTION 3		
3.1.	$x + 75^\circ + 55^\circ = 180^\circ \checkmark$ $x + 130^\circ = 180^\circ \checkmark$ $x = 180^\circ - 130^\circ$ $x = 50^\circ \checkmark$	(3)
3.2.	$x = 70^\circ$ (alternating angles) $\checkmark \checkmark$ $y = 70^\circ$ (angles opposite equal sides) $\checkmark \checkmark$ $z + x + y = 180^\circ$ (sum of angles of a triangle) \checkmark $z + 70^\circ + 70^\circ = 180^\circ$ $z = 40^\circ \checkmark$	(6)
3.3.1.	$3x - 20^\circ + x + 80^\circ = 180^\circ$ (co-interior angles) $\checkmark \checkmark$ $4x + 60^\circ = 180^\circ$ $x = 30^\circ \checkmark$	(3)
3.3.2.	$\hat{D} = 3x - 20^\circ$ $\hat{D} = 3(30^\circ) - 20^\circ \checkmark$ $\hat{D} = 70^\circ \checkmark$ $\hat{B} = \hat{D}$ (opposite angles of parallelogram are equal) $\therefore \hat{B} = 70^\circ \checkmark$	(3)
3.4.1.	In $\triangle ABD$ and $\triangle ACD$ $AB = AC$ (given) \checkmark $BD = CD$ (given) $AD = AD$ (common side) \checkmark $\therefore \triangle ABD \cong \triangle ACD$ (S,S,S) \checkmark	(3)
3.4.2.	$A_1 = A_2$ (corresponding angles of congruent triangles) \checkmark	(1)
		[19]

<u>QUESTION 4</u>		
4.1.1	<p>In $\triangle DBE$ and $\triangle FCE$.</p> <p>$\hat{D}_1 = \hat{F}$ (alternating angles) \checkmark $\hat{E}_1 = \hat{E}_3$ (vertical opposite angles) \checkmark $\hat{B} = \hat{C}_2$ (alternating angles) \checkmark $\therefore \triangle DBE \parallel \triangle FCE$ (A,A,A) \checkmark</p>	
4.1.2	<p>$\frac{DB}{FC} = \frac{BE}{CE}$ \checkmark</p> <p>$\frac{DB}{5} = \frac{8}{10}$ \checkmark</p> <p>\checkmark DB = 4 cm</p>	(3)
		[7]
<u>QUESTION 5</u>		
5.1.1.	90° \checkmark	
5.1.2.	<p>$AB^2 = BE^2 + AE^2$ \checkmark $5^2 = 4^2 + AE^2$ \checkmark $25 = 16 + AE^2$ $AE^2 = 9$ $AE = 3$ cm \checkmark</p>	(3)
5.1.3.	<p>AE = EC (one diagonal bisects the other diagonal in a kite) \checkmark $AC = AE + EC$ $= 3\text{cm} + 3\text{cm}$ $= 6$ cm \checkmark</p>	(2)
		[6]
TOTAL = 50		