KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

PROVINCIAL STANDARDISED ASSESSMENT

GRADE 10

MATHEMATICS P2

PROVINCIAL STANDARDISED ASSESSMENT

JUNE 2026

MARKS: 50

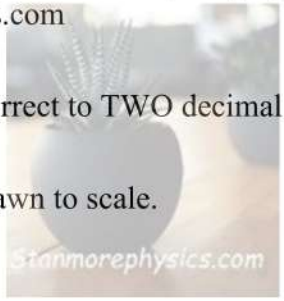
TIME: 1 Hour

This question paper consists of 6 pages.

INSTRUCTIONS AND INFORMATION

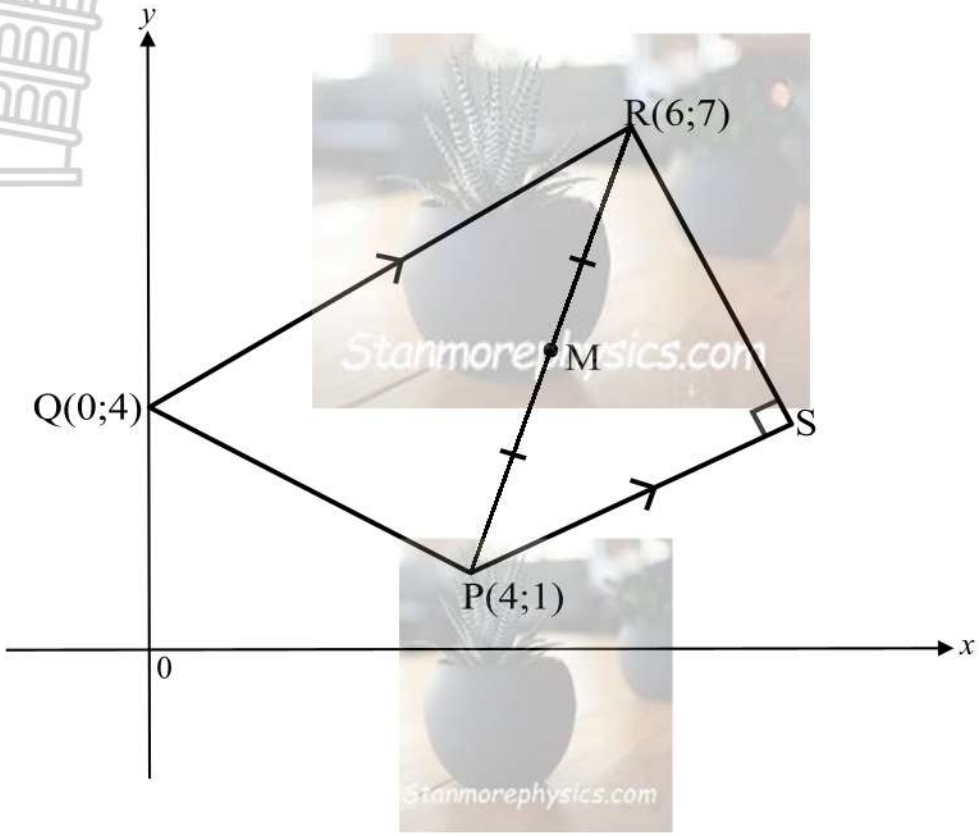
Read the following instructions carefully before answering the questions.

1. This question paper consists of 3 questions.
2. Answer ALL the questions.
3. Number the answers correctly according to the numbering system used in this question paper.
4. Clearly show ALL calculations, diagrams, graphs, etc. which you have used in determining your answers.
5. Answers only will NOT necessarily be awarded full marks.
6. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise. Stanmorephysics.com
7. If necessary, round off answers correct to TWO decimal places, unless stated otherwise.
8. Diagrams are NOT necessarily drawn to scale.
9. Write neatly and legibly.



QUESTION 1

In the diagram PQRS is a trapezium with PS//QR and RS ⊥ PS . M is a point on PR such that MP = MR. Point P (4;1), Q (0;4) and R (6;7) are given.



1.1 Determine the gradient of QR. (2)

1.2 Calculate the coordinates of M. (2)

1.3 Determine the equation of the line PS. (3)

1.4 Calculate the coordinates of S. (5)

1.5 Hence, determine the area of trapezium PQRS. (5)

[17]

QUESTION 2

2.1 Solve for x in the following equations, correct to two decimal places.

2.1.1 $2\sin x = 1,64$ (2)

2.1.2 $\dfrac{1,53}{\tan(x-15°)} = 1$ (3)

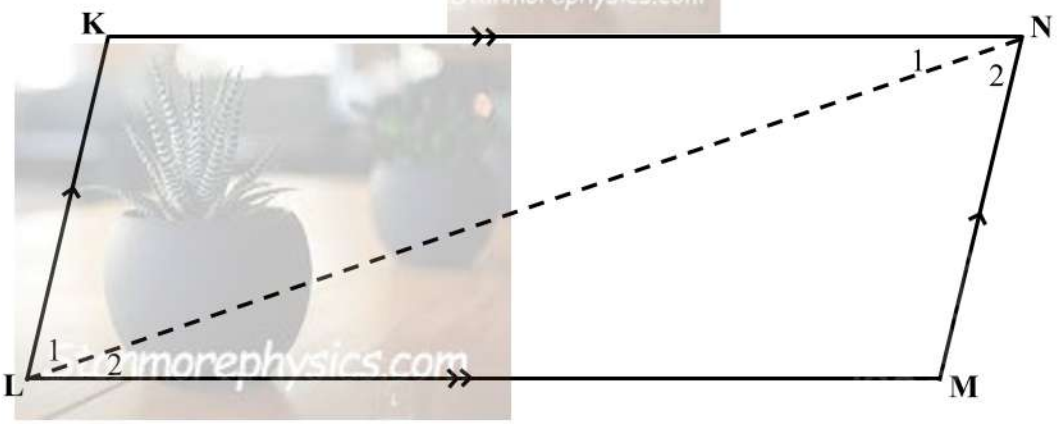
2.2 Evaluate without using a calculator: $\dfrac{\cos 45°}{\sin 45°\left(\dfrac{1}{\cot^2 30°}\right)}$ (4)

2.3 If $13\cos\theta + 12 = 0$ and $180° \leq \theta \leq 360°$, calculate with the aid of diagram, but without using a calculator, the value of: $\dfrac{1}{\sec\theta} + \sin\theta$ (5)

[14]

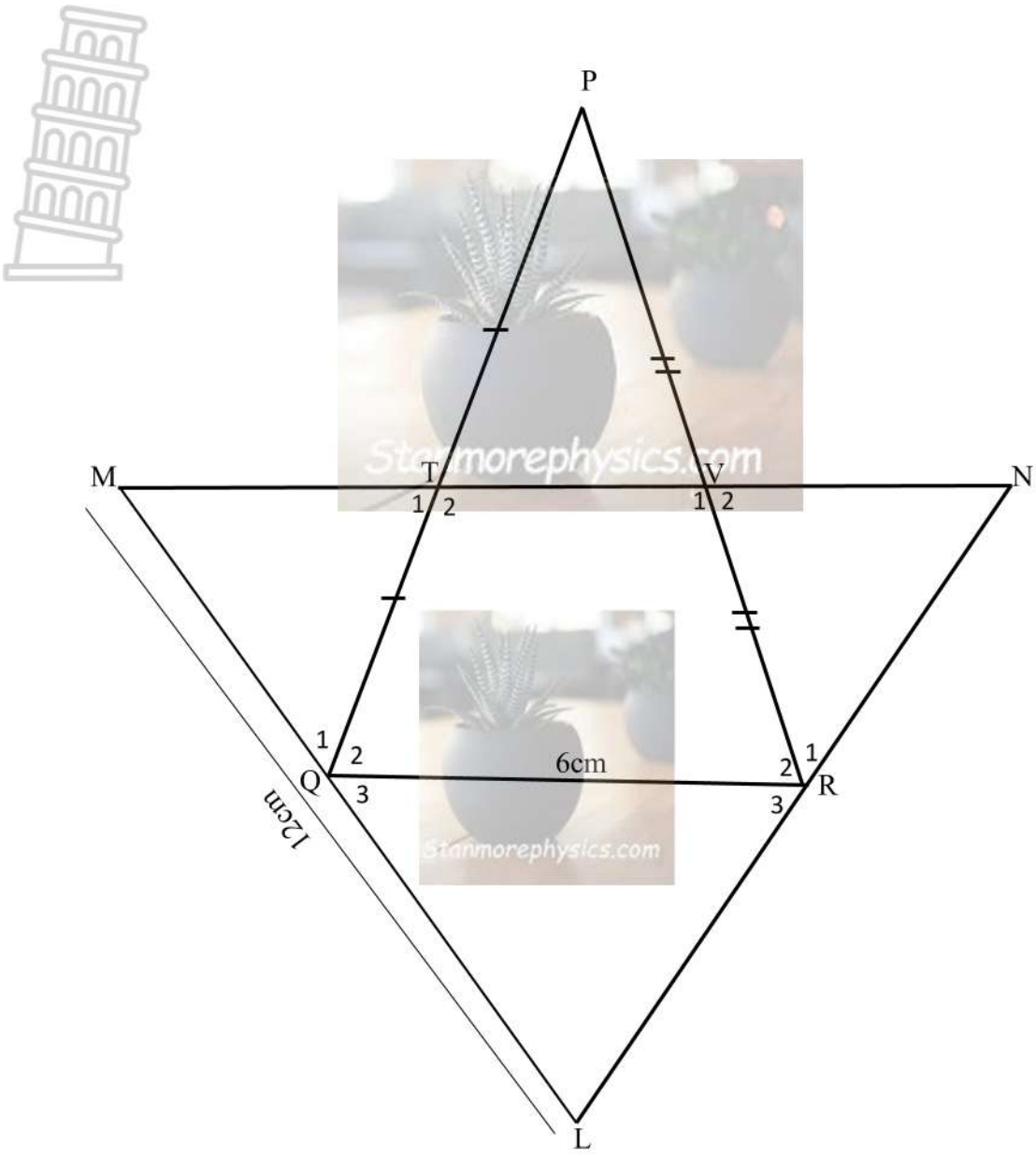
QUESTION 3 (Provide reasons for your statements.)

3.1 KLMN is a parallelogram with KN//LM and LK//MN.



Using the diagram above, prove the theorem which states that the opposite sides of a parallelogram are equal. Stanmorephysics.com (5)

3.2 In the diagram below, PT = TQ and PV = VR. ML = 12cm and QR = 6cm.



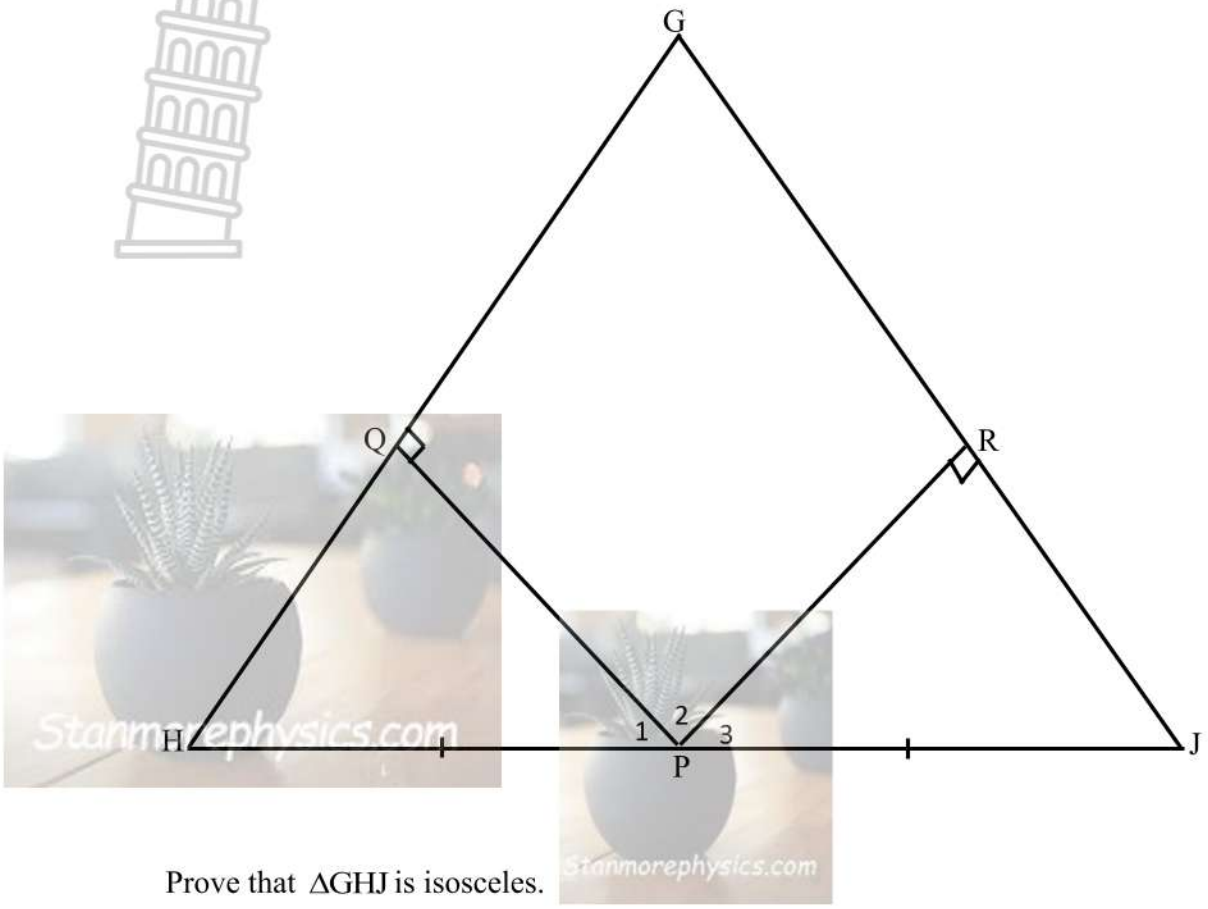
3.2.1 Determine the length of TV. (3)

3.2.2 If LR = RN, determine:

a) The length of MQ. (3)

b) The value of MT + VN. (3)

3.3 In the triangle GHJ, $PQ \perp GH, PR \perp GJ$, HP = PJ and $\hat{P}_1 = \hat{P}_3$.



Prove that ΔGHJ is isosceles. (5)

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TOTAL MARKS: 50

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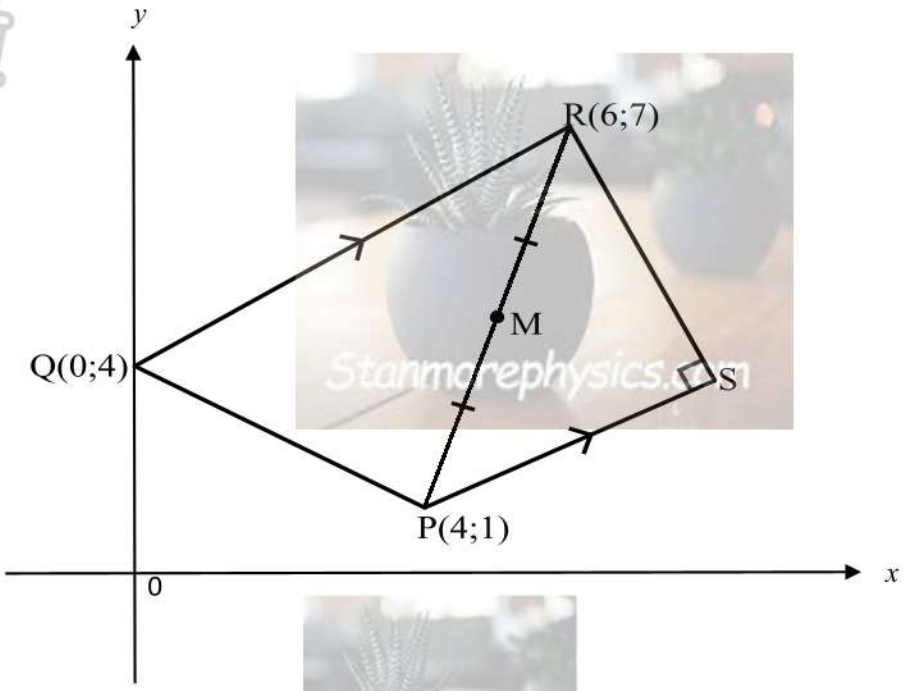
MARKING GUIDELINE

MARKS: 50

This marking guideline consists of 9 pages.

QUESTION 1



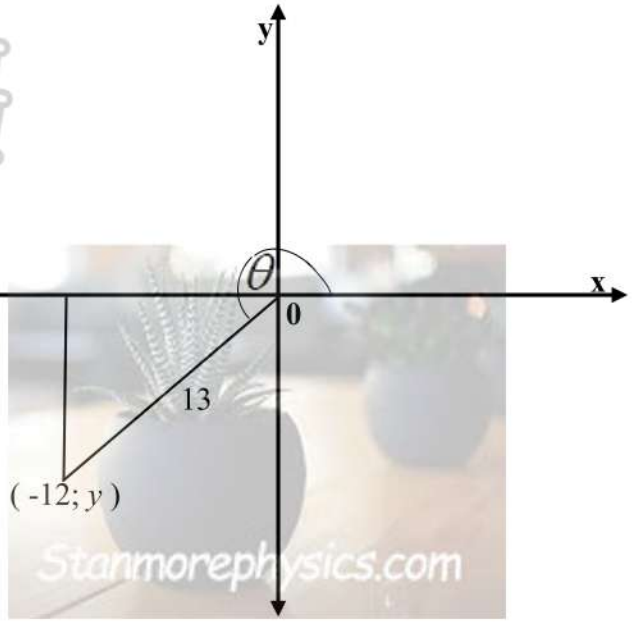
1.1	$m_{QR}=\frac{y_2-y_1}{x_2-x_1}$ $m_{QR}=\frac{7-4}{6-0}$ $m_{QR}=\frac{1}{2}$	✓A correct substitution ✓CA answer (2)
1.2	$M\left(\frac{x_1+x_2}{2};\frac{y_1+y_2}{2}\right)$ $M\left(\frac{6+4}{2};\frac{7+1}{2}\right)$ $M(5;4)$ Answer only: Full marks	✓A correct substitution ✓CA answer (2)

1.3	$m_{PS} = m_{QR}$ $m_{PS} = \frac{1}{2}$ $y - y_1 = m(x - x_1)$ $y - 1 = \frac{1}{2}(x - 4)$ $y = \frac{1}{2}x - 1$ **OR** $m_{PS} = m_{QR}$ $m_{PS} = \frac{1}{2}$ $y = mx + c$ $1 = \frac{1}{2}(4) + c$ $y = \frac{1}{2}x - 1$	✓CA $m_{PS} = \frac{1}{2}$ ✓A correct substitution of point P ✓CA answer (3)
1.4	$m_{RS} \times m_{PS} = -1$ $m_{RS} = -2$ $y - y_1 = m(x - x_1)$ $y - 7 = -2(x - 6)$ $y = -2x + 19$ $-2x + 19 = \frac{1}{2}x - 1$ $x = 8$ $y = 3$ $\therefore S(8;3)$	✓CA $m_{RS} = -2$ ✓CA correct substitution ✓CA $y = -2x + 19$ ✓CA Equating equations ✓CA Answer provided $x; y > 0$ (5)
1.5	$QR = \sqrt{(6-0)^2 + (7-4)^2}$ $QR = 3\sqrt{5}$ $PS = \sqrt{(8-4)^2 + (3-1)^2}$ $PS = 2\sqrt{5}$	✓A $3\sqrt{5}$ ✓CA $2\sqrt{5}$

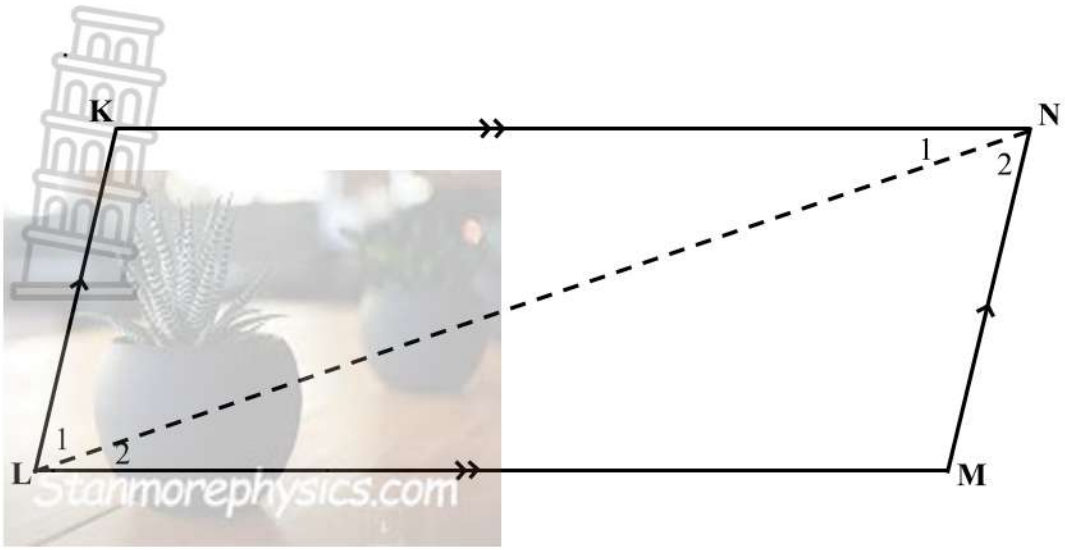
	$RS=\sqrt{(8-6)^2+(3-7)^2}$ $RS=2\sqrt{5}$ Area of $PQRS=\frac{1}{2}(QR+PS)RS$ Area of $PQRS=\frac{1}{2}\left(3\sqrt{5}+2\sqrt{5}\right)\left(2\sqrt{5}\right)$ Area of PQRS= 25 units^2	✓CA $2\sqrt{5}$ ✓CA substitution into correct formula ✓CA answer (5)
		[17]

QUESTION 2

2.1.1	$2\sin x=1,64$ $\sin x=0,82$ $x=55,08°$	✓A ✓A (2)
2.1.2	$\frac{1,53}{\tan(x-15°)}=1$ $\tan(x-15°)=1,53$ $x-15°=56,83$ $x=71,83°$	✓A ✓A ✓A (3)
2.2	$\frac{\cos 45°}{\sin 45°\left(\frac{1}{\cot^2 30°}\right)}$ $=\frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}\left(\frac{1}{\sqrt{3}}\right)^2}$ $=3$	✓A $\cos 45°=\frac{\sqrt{2}}{2}$ or $\frac{1}{\sqrt{2}}$ ✓A $\sin 45°=\frac{\sqrt{2}}{2}$ or $\frac{1}{\sqrt{2}}$ ✓A $\cot 30°=\frac{1}{\sqrt{3}}$ ✓CA answer (4)

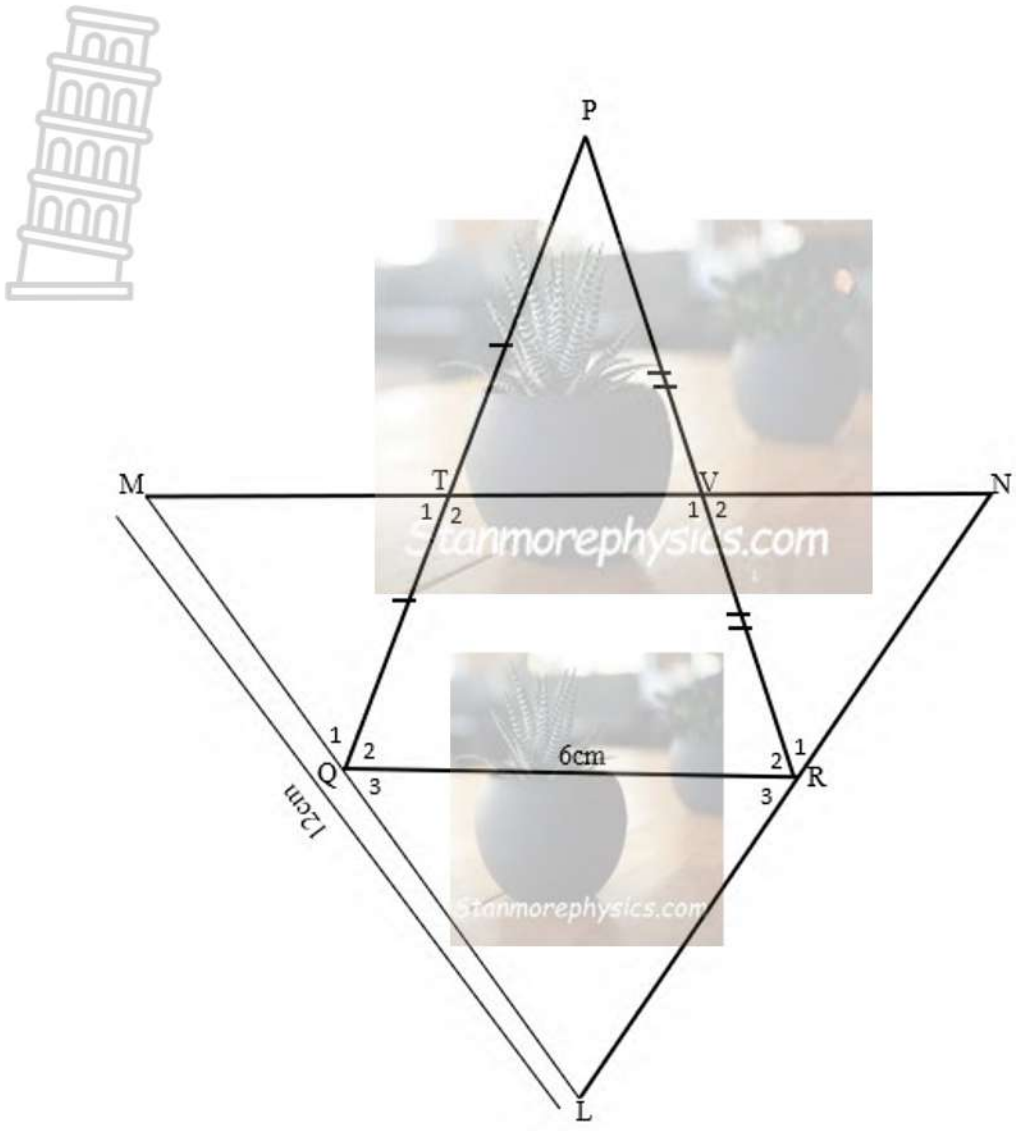
2.3		✓A correct diagram
	$x^2 + y^2 = r^2$ $(-12)^2 + y^2 = (13)^2$	✓A correct substitution
	$y^2 = 25$	
	$y = \pm 5$	
	$y = -5$	✓CA $y = -5$, provided $y < 0$
	$\frac{1}{\sec\theta} + \sin\theta$	
	$= \cos\theta + \sin\theta$	
	$= \frac{-12}{13} + \left(\frac{-5}{13}\right)$	✓CA correct substitution
	$= \frac{-17}{13}$	✓CA answer (5)
		[14]

QUESTION 3



3.1	In ΔKLN and ΔMNL 1. $LN = LN$ [common] 2. $\hat{N}_1 = \hat{L}_2$ [alt angles; KN//LM] 3. $\hat{N}_2 = \hat{L}_1$ [alt angles; LK//MN] $\Delta KLN \equiv \Delta MNL$ [SAA] **OR** [AAS] $\therefore$ KN=LM and KL=NM	✓ S/R ✓ S ✓R ✓ S/R ✓ R (5)

3.2

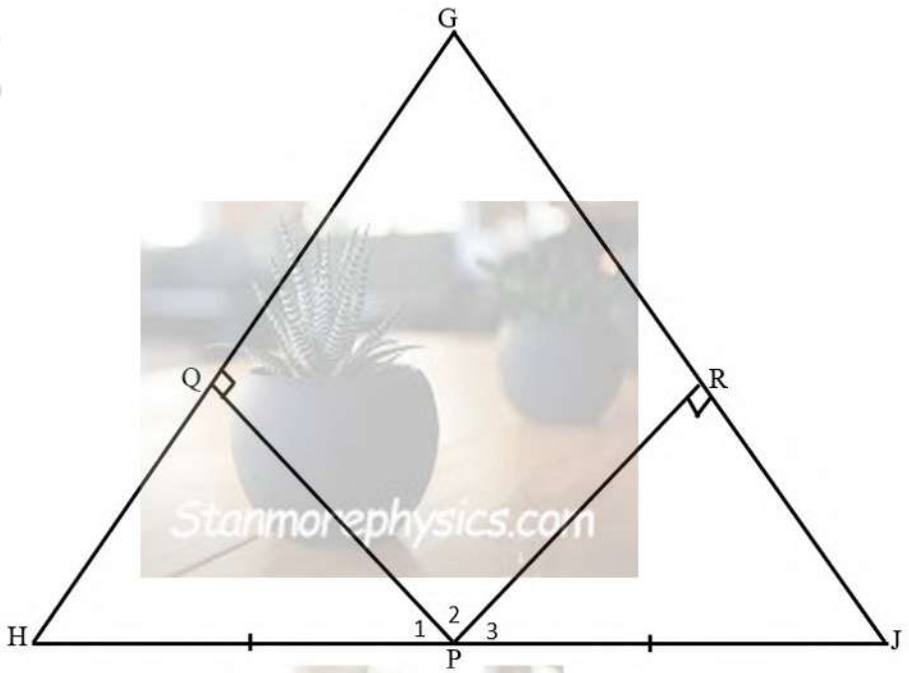


3.2.1	$TV=\frac{1}{2}QR$ and TV // QR [Midpt Theorem] $TV=\frac{1}{2}(6)$ TV = 3 cm	✓A S/R ✓A correct substitution ✓A answer (3)

3.2.2 (a)	MQ=LQ [line through midpt // to 2nd side]
	MQ+LQ=12
	2MQ= 12
	MQ=6cm
		✓A S/R
		✓A correct substitution
		✓A answer
		(3)

3.2.2 (b)	MN=2QR [Midpt Theorem] MN=2(6) MN = 12cm MT+VN+TV=12 MT+VN+3=12 MT+VN=9cm	✓A S/R ✓A S ✓CA answer (3)

3.3



	In ΔPQH and ΔPRJ		
	1. $HP=PJ$	[Given]	✓A S/R
	2. $H\hat{Q}P=J\hat{R}P$	[both =90°]	✓A S/R
	3. $\hat{P}_1=\hat{P}_3$	[Given]	
	$\Delta PQH \equiv \Delta PRJ$	[SAA] **OR** [AAS]	✓A R
	$Q\hat{H}P=R\hat{J}P$	$[\Delta PQH \equiv \Delta PRJ]$	✓A S/R
	$\therefore HG=JG$	[sides opp equal ∠s]	✓A S/R
	$\therefore \Delta GHJ$ is isosceles		(5)
		OR	
	$G\hat{H}J=90^\circ-\hat{P}_1$	[ext. ∠ of Δ]	✓A S/R
	$G\hat{J}H=90^\circ-\hat{P}_3$	[sum of ∠s in Δ]	✓A S/R
	But $\hat{P}_1=\hat{P}_3$	[given]	✓A S/R
	$\therefore G\hat{H}J=G\hat{J}H$		✓A conclusion
	$\therefore HG=JG$	[sides opp equal ∠s]	✓A S/R
	$\therefore \Delta GHJ$ is isosceles		(5)
			[19]
		TOTAL MARKS:	**50**