KWAZULU-NATAL PROVINCE

EDUCATION

REPUBLIC OF SOUTH AFRICA

PROVINCIAL STANDARDISED ASSESSMENT

GRADE 11

MATHEMATICS P2

JUNE 2026

Stanmorephysics.com

MARKS: 100

TIME: 2 hours

This question paper consists of 8 pages and an answer book of 12 pages.

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INSTRUCTIONS AND INFORMATION

Read the following instructions and information carefully before answering the questions.

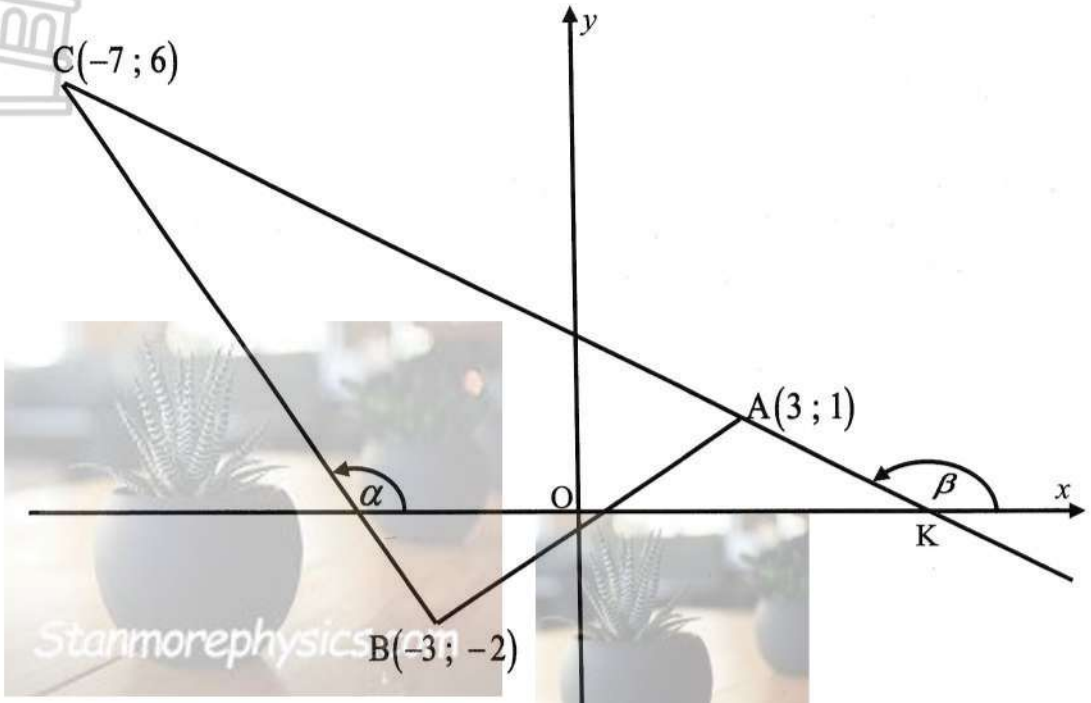
1. This question paper consists of 6 questions.
2. Answer ALL the questions in the SPECIAL ANSWER BOOK provided.
3. Clearly show ALL calculations, diagrams, graphs, et cetera that you have used in determining your answers.
4. Answers only will NOT necessarily be awarded full marks.
5. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
6. If necessary, round off answers to TWO decimal places, unless stated otherwise.
7. Diagrams are NOT necessarily drawn to scale.
8. Write neatly and legibly.



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QUESTION 1

1.1 In the diagram below, ΔABC is drawn with $A(3\ ;\ 1)$, $B(-3\ ;\ -2)$ and $C(-7\ ;\ 6)$. CA is produced to intersect the x-axis at K. α and β are the angles of inclination of BC and CK respectively.



1.1.1 Calculate the gradient of AC. (2)

1.1.2 Calculate the coordinates of M, the midpoint of AC. (2)

1.1.3 Calculate the coordinates of K. (4)

1.1.4 Show that $AB \perp BC$. (3)

1.1.5 Calculate the area of ΔABC. Leave your answer in simplest surd form. (5)

1.1.6 Determine the equation of a line drawn parallel to AB and passing through C. (3)

1.1.7 Calculate the size of $B\hat{C}A$, correct to the nearest degree. (4)

1.1.8 Calculate the coordinate of D if ABCD, in that order, is a parallelogram (2)

1.2 Three straight lines PQ, ST and $x+3=0$ intersect each other at one point.
The equation of PQ is $\frac{1}{2}ky+\frac{3}{2}x+1=0$ and the equation of ST is $\frac{1}{2}y+\frac{1}{3}x-1=0$.
Calculate the value of k if $k \neq 0$. (5)

[30]

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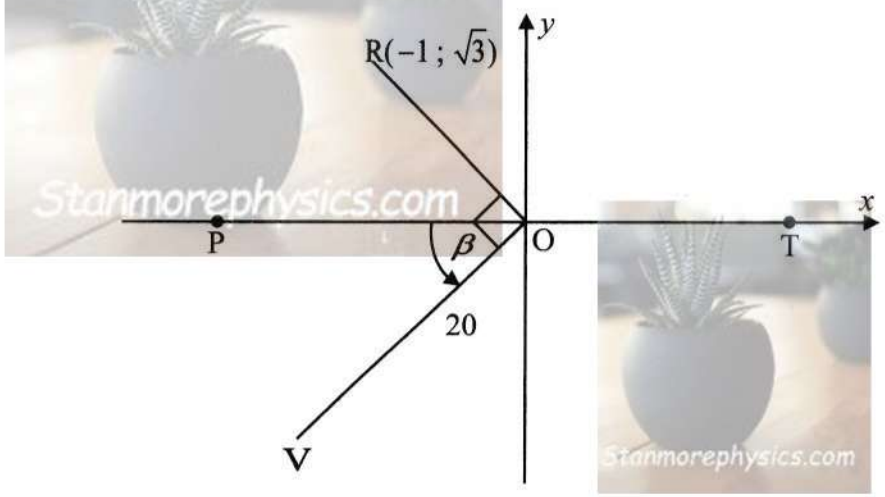
QUESTION 2

2.1 If $\sin 17° = m$, WITHOUT using a calculator, express the following in terms of m:

2.1.1 $\tan 17°$ (2)

2.1.2 $\sin(-107°)$ (3)

2.2 In the diagram below, $R(-1\,;\sqrt{3})$ is a point on the Cartesian plane. V is a point such that $OV = 20$. P and T are points on the negative and positive x-axis respectively. $R\hat{O}V = 90°$ and $P\hat{O}V = \beta$.



2.2.1 Calculate the size of β, WITHOUT using a calculator. (3)

2.2.2 Show, WITHOUT using a calculator, that the coordinates of V are $(-10\sqrt{3}\,;\,-10)$. (3)

[11]

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QUESTION 3

3.1 Simplify the following to a single trigonometric ratio:

$$\frac{\tan(180°-x).\cos^2(180°+x)}{\cos(x+90°).\sin(x-360°)}$$ (6)

3.2 Simplify the following expression fully WITHOUT the use of a calculator:

$$\frac{\cos(-225°).\sin 135°+\sin 330°}{\tan 45°}$$ (5)

3.3 Prove the following identity:

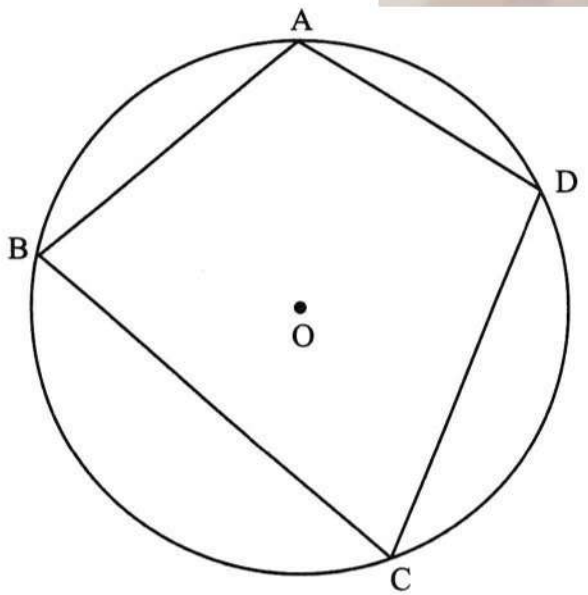
$$\frac{1}{\cos\theta}-\frac{\cos\theta}{1+\sin\theta}=\tan\theta$$ (4)

3.4 Determine the general solution to $\sin(x-30°)=\cos 2x$. (5)

[20]

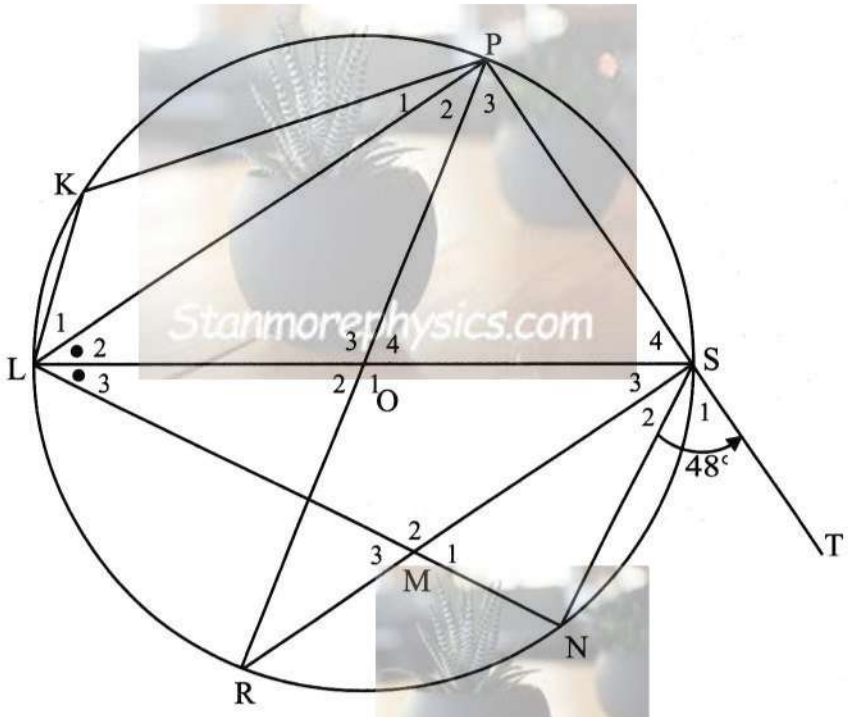
QUESTION 4

4.1 In the diagram below, O is the centre of the circle and ABCD is a cyclic quadrilateral.



Use the diagram in the ANSWER BOOK to prove the theorem that states that the opposite angles of a cyclic quadrilateral are supplementary, that is $\hat{A}+\hat{C}=180°$. (5)

4.2 In the diagram below, LS and PR are diameters of the circle with centre O. PS is produced to T. N is a point on the circle such that SL bisects $P\hat{L}N$. RS intersects LN at M. K is a point on the circle. PK, KL and SN are joined and $\hat{S}_1 = 48°$.



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Calculate, with reasons, the size of:

4.2.1 $\hat{L}_2$ (3)

4.2.2 $\hat{S}_4$ (3)

4.2.3 $\hat{K}$ (2)

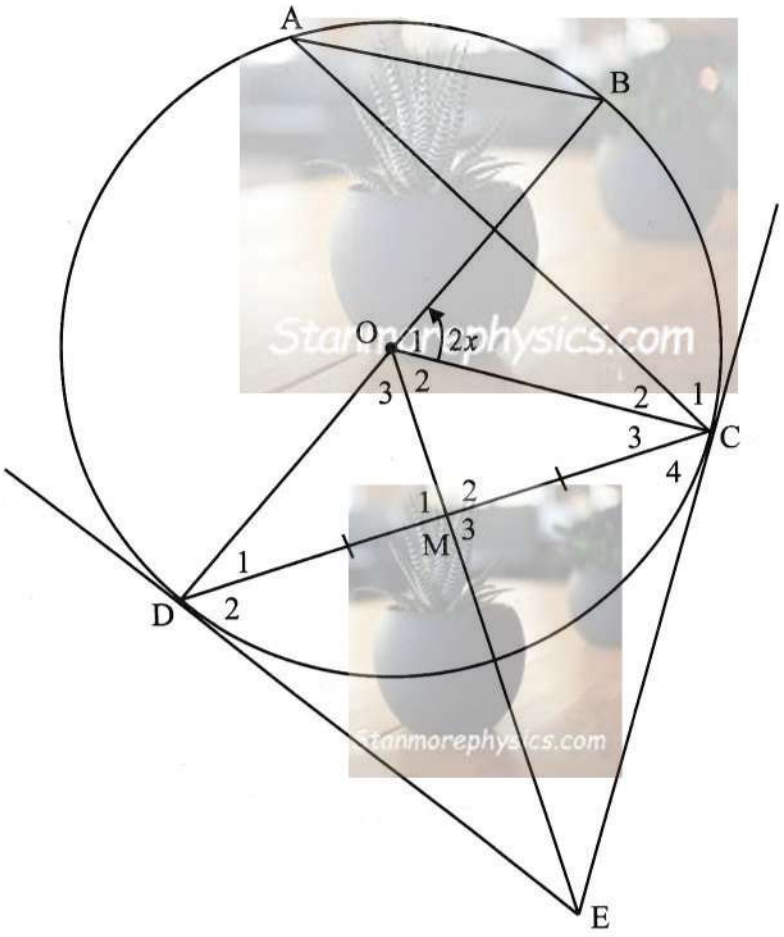
4.2.4 $\hat{R}$ (2)

4.2.5 $\hat{O}_3$ (2)

[17]

QUESTION 5

In the diagram below, O is the centre of the circle and CE and DE are tangents to the circle at C and D respectively. OE bisects CD in M. Let $\hat{O}_1 = 2x$.



5.1 Give a reason why $DE = CE$. (1)

5.2 Write, with reasons, THREE angles each equal to x. (4)

5.3 Prove that $\hat{O}_2 = 90° - x$. (2)

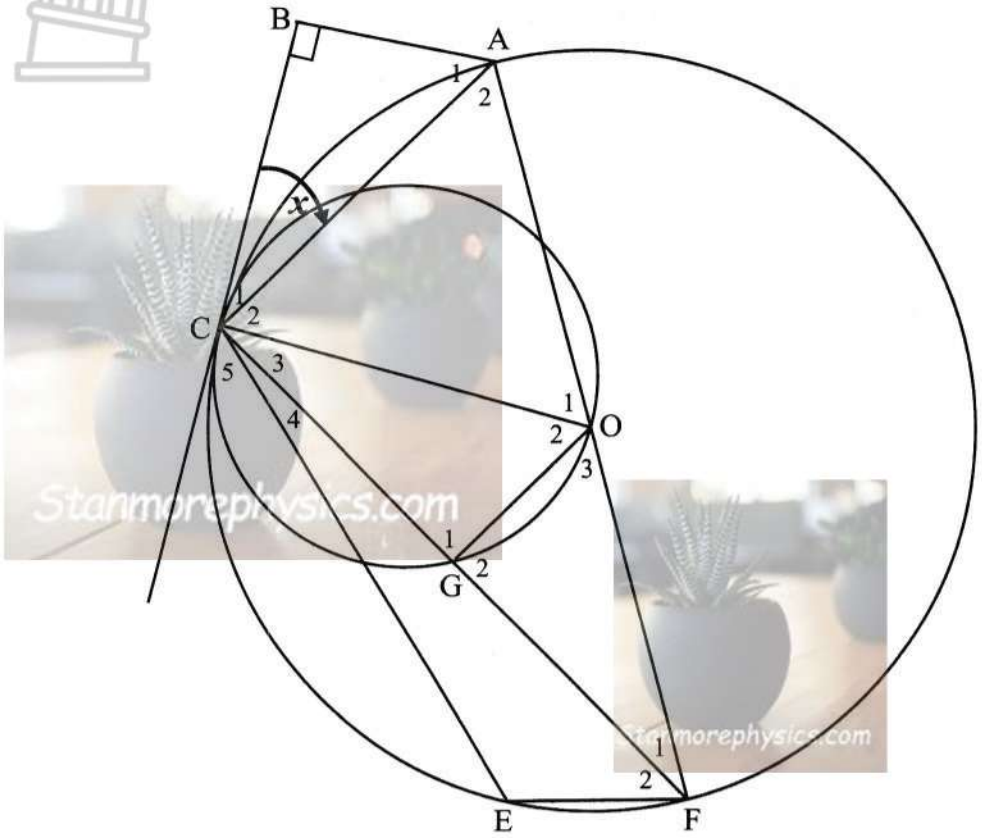
5.4 Prove that EC is a tangent to the circle passing through M, C and O. (3)

5.5 Prove that DOCE is a cyclic quadrilateral. (3)

[13]

QUESTION 6

In the diagram below, O is the centre of the larger circle ACEF. CO is the diameter of the smaller circle CGO. BC is a tangent to both circles at C. AB ⊥ BC. Let $\hat{BCA} = x$.



6.1 Prove that CA bisects $\hat{BAO}$. (4)

6.2 Prove that $\hat{GOA} = \hat{CEF}$. (5)

[9]

TOTAL MARKS: 100

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