



education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

Stanmorephysics.com

GRADE 11

MATHEMATICS P2

Stanmorephysics.com

JUNE 2025

MARKS: 75

TIME: $1\frac{1}{2}$ hour

This question paper consists of 6 pages.

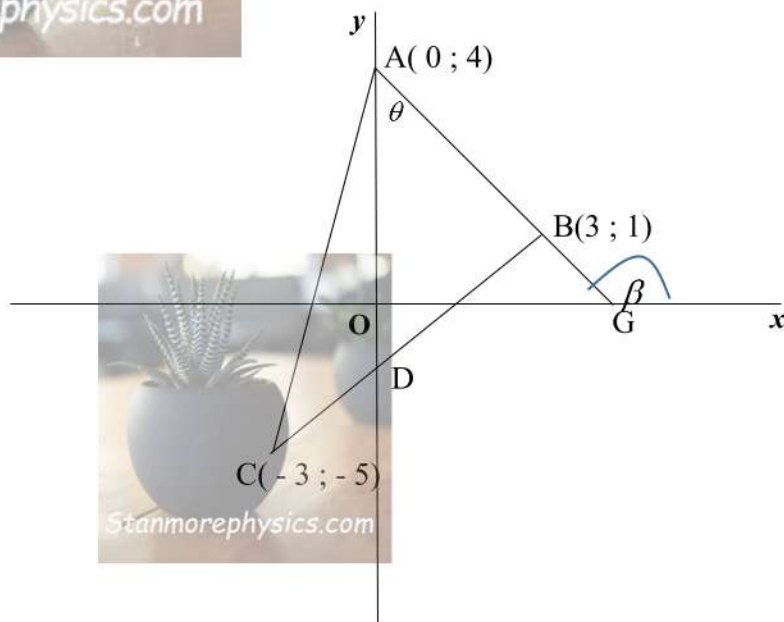
INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of 4 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. that 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.
7. If necessary, round off answers 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 below A is a point on the y -axis and ABG is a straight line with G on the x -axis, AC is drawn. $\hat{B}AD = \theta$ and the angle of inclination of line ABG is β . BC cuts the y -axis at point D.



- 1.1 Determine the length of AC (2)
- 1.2 Determine the gradient of AB. (2)
- 1.3 Determine the size of θ . (3)
- 1.4 Determine the equation of a line parallel to BC passing through point A. (4)
- 1.5 Determine the midpoint of AC. (2)
- 1.6 Point E is in the third quadrant such that ABCE is a rectangle, determine the coordinates of point E. (3)
- 1.7 Prove that OBGD is a cyclic quadrilateral. (4)

[20]

QUESTION 2

2.1 Given $\sin \theta = -\frac{3}{5}$; and $\tan \theta < 0$,

WITHOUT using a calculator determine:

2.1.1 $\cos \theta$. (3)

2.1.2 $\tan(180^\circ - \theta)$ (2)

2.1.3 $\cos(90^\circ + 36.87^\circ)$, if $\theta = -36.87^\circ$ (3)

2.2 Simplify: $\frac{\sin(-\theta)\sin(180^\circ - \theta) + \cos(90^\circ + \theta)}{1 - \sin(360^\circ - \theta)}$ to one trigonometric ratio. (6)

2.3 Prove that:

$$\tan^2 \theta - \sin^2 \theta = \tan^2 \theta \cdot \sin^2 \theta \quad (5)$$

2.4 If $\cos 25^\circ = t$, express $\sin 785^\circ - \cos 240^\circ - \sin^2(205^\circ)$ in terms of t , and leave your answer in the form $at^2 + bt + c$ (6)

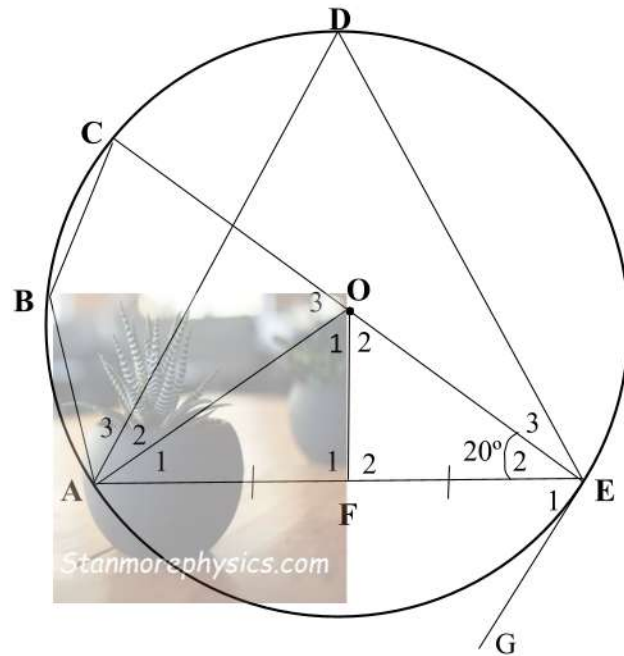
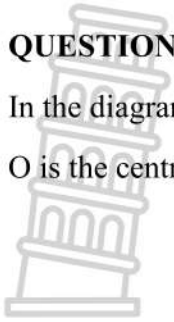
2.5 Determine the general solution of $(3 \sin x + 1)(\sin x - 2) = 0$ (6)

2.6 If $g(\beta) = \frac{\sqrt{\sin(90^\circ + \beta)}}{3}$; and $0^\circ < \beta < 180^\circ$; for which values of β will g be a non-real number. (4)

[35]

QUESTION 3

In the diagram below, points A, B, C, D and E lies on the circumference of the circle, O is the centre of the circle, $AF = FE$ and $\hat{E}_2 = 20^\circ$. EG is a tangent to the circle at E.



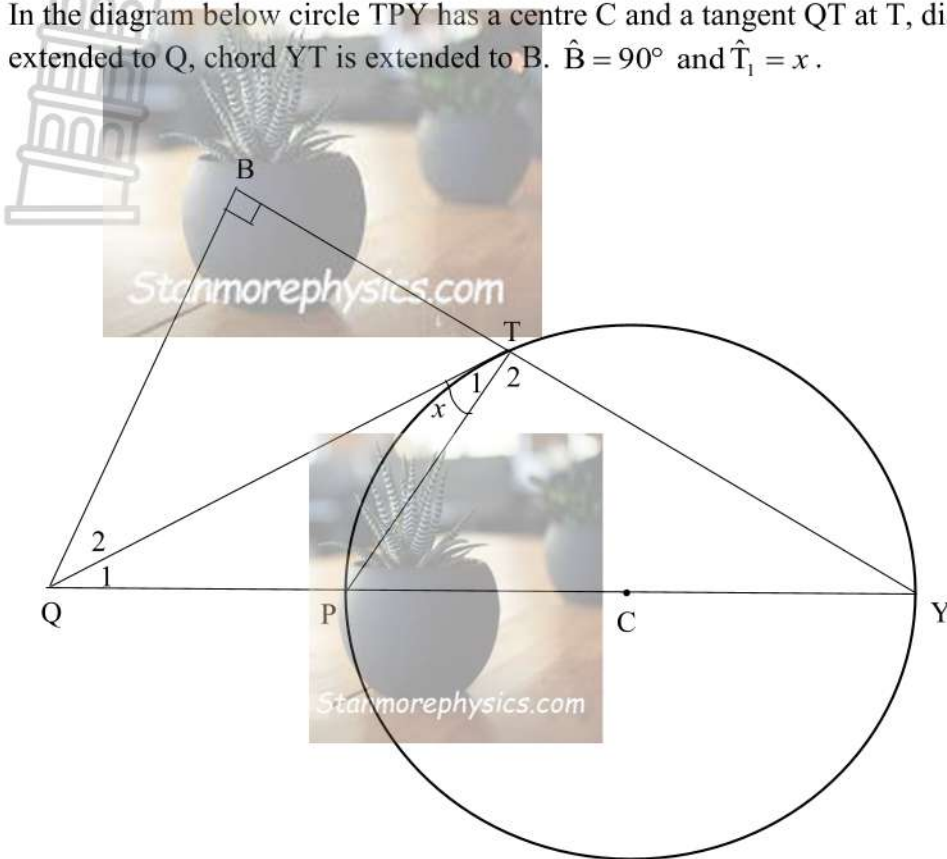
Determine with reasons the size of the following angles:

- 3.1 \hat{A}_1 (2)
- 3.2 \hat{B} (2)
- 3.3 \hat{O}_2 (3)
- 3.4 \hat{D} (3)

[10]

QUESTION 4

In the diagram below circle TPY has a centre C and a tangent QT at T, diameter YP is extended to Q, chord YT is extended to B. $\hat{B} = 90^\circ$ and $\hat{T}_1 = x$.



- 4.1 Give a reason why QT is a diameter to a circle passing through QBT. (1)
- 4.2 Prove that $PT \parallel BQ$. (3)
- 4.3 Give a correct reason for the following statements:
 - 4.3.1 $\hat{Y} = x$ (1)
 - 4.3.2 $\hat{Q}_2 = x$ (1)
- 4.4 Prove that: $BY^2 = 4PC^2 + 4PC \cdot QP + QP^2 - BQ^2$ (4)

[10]

TOTAL: 75

