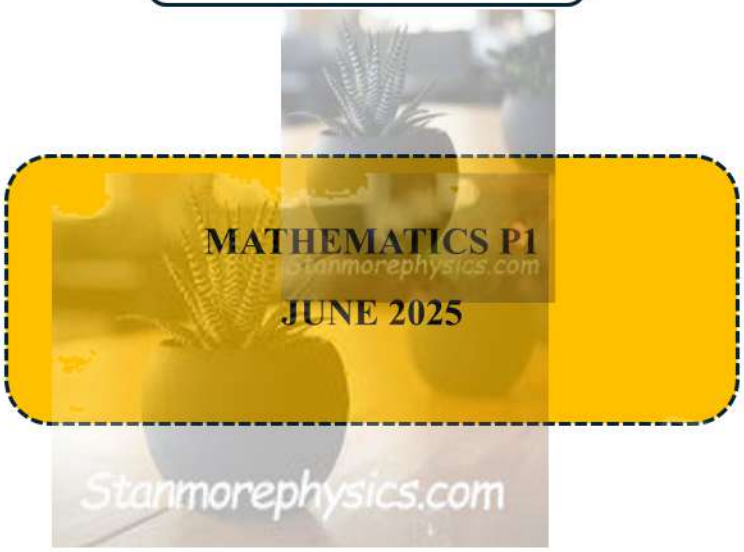
LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

NATIONAL
SENIOR CERTIFICATE

GRADE 10



MATHEMATICS P1
JUNE 2025

MARKS: 50

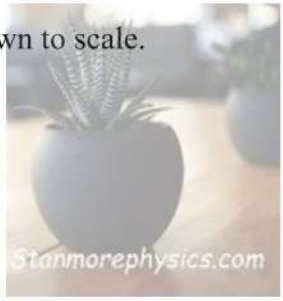
TIME: 1 Hour

This question paper consists of 5 pages including the cover page.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of FIVE 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, et cetera 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

Consider the following: $A=\sqrt{12}+\sqrt{3}$

1.1 Determine the value of A rounded off to TWO decimal places. (2)

1.2 State whether the value of A is rational or irrational, Justify your answer. (2)

1.3 Without using a calculator, determine between which two consecutive integers the value of A lies. (2)

[6]

QUESTION 2

2.1 Simplify:

2.1.1 $\dfrac{x^2-4}{x^2-x-2}\div\dfrac{x^3+2x^2}{x^3+1}$ (4)

2.1.2 $\left(2a^{-1}b^2\right)^3\times\sqrt[3]{-8a^6}$ (2)

2.2 Factorise the following expression fully:

$\frac{1}{2}(a+b)^2-6(a+b)+16$ (3)

[9]

QUESTION 3

3.1 Solve for x: $3^{2x}=81$ (3)

3.2 Solve for x and represent the answer on a number line.

$1\le 1-2x<9$ (2)

3.3 Solve for x and y simultaneously:

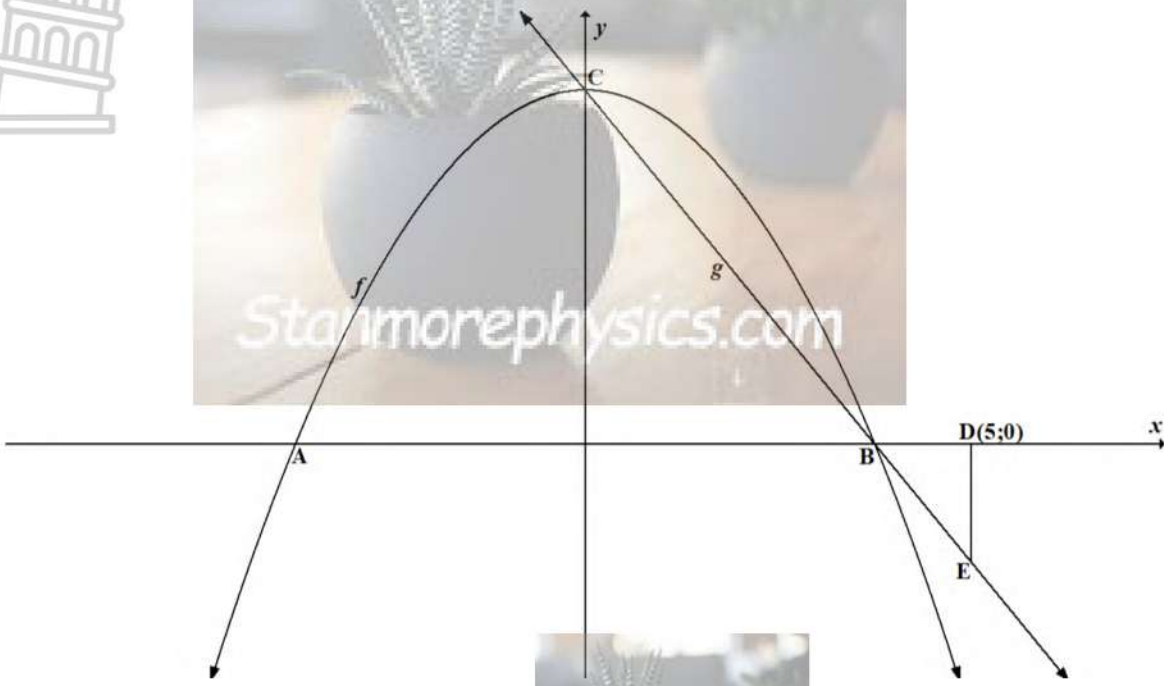
$-10x=-1$ and $-4x+10y=-9$ (3)

3.4 A rectangle has a length of $(x+3)$ cm and a width of $(x-1)$ cm. If the area of the rectangle is exactly 21 cm^2, calculate the actual length and width of the rectangle. (4)

[12]

QUESTION 4

In the diagram below, the graphs of $f(x) = -x^2 + 9$ and a line $g(x) = mx + c$ passing through B and C. Point E lies on g, such that DE is parallel to y-axis and D(5;0).



Determine:

4.1 The length of AB. (4)

4.2 The coordinates of C. (2)

4.3 The equation of the straight line $g(x)$. (4)

4.4 The distance of DE if OD = 5 units. (2)

4.5 For which values of x will:

4.5.1 $f(x) - g(x) = 0$ (2)

4.5.2 $f(x) > g(x)$ (2)

4.6 The range of f. (2)

[18]

QUESTION 5

A small local workshop makes hand-crafted items. The daily cost (in Rand) of making x items is given by the formula:

$$C = x^2 - 10x + 125$$

The owner wants to keep the production cost as low as possible.

Determine the lowest cost and how many items should be made each day to keep the cost at its minimum? (5)

[5]

TOTAL MARKS: 50

ANSWER SHEET

LEARNER'S NAME:_____ **GRADE:**____

QUESTION 5.1