Province of the
EASTERN CAPE
EDUCATION

Iphondo leMpuma Kapa: Isebe leMfundo
Provinsie van Oos Kaap: Department van Onderwys
Provense ya Kapa Botjhabela: Letapha la Thuto

OR TAMBO INLAND DISTRICT

GRADE 11

MATHEMATICS PAPER 1

JUNE EXAMINATIONS

2026

MARKS: 100

DURATION: 2 HOURS

This question paper consists of 6 pages, including the cover page and formula sheet

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions.
2. Answer all questions.
3. Clearly show ALL calculations.
4. Answer only will not necessarily be awarded full marks.
5. If necessary, round off your answers to two decimal places.
6. Diagrams are not necessarily drawn to scale.
7. Number the answers correctly according to the numbering system used in this question paper.
8. Write neatly and legibly.

QUESTION 1

1.1 Solve for x:

1.1.1 $x^2 - 5x = 0$ (3)

1.1.2 $3x^2 - x = 5$ round off your answer, correct to 2 decimal places (4)

1.1.3 $(x-3)(x-4) \geq 6$ (4)

1.1.4 $4^x - 10.2^x + 16 = 0$ (6)

1.1.5 $1 + \sqrt{5-x} = -x$ (5)

1.2 The length and breadth of a rectangle is $\boldsymbol{x}\ cm$ and $\boldsymbol{y}\ cm$ respectively. It's perimeter is $40\ cm$.

1.2.1 Show that: $y = 20 - x$ (3)

1.2.2 What is the maximum possible area? (5)

[30]

QUESTION 2

2.1 Simplify the following expressions:

2.1.1 $\dfrac{2^{n-3} + 2^{n-2}}{2^{n-3}}$ (4)

2.1.2 $\dfrac{x+y}{x-y} - \dfrac{x-y}{x+y}$; $y \neq x$ (4)

2.2 Without using a calculator, show that $5\sqrt{2} - 3\sqrt{3}$ is a square root of $77 - 30\sqrt{6}$ (3)

2.3 If $(27^{-3})^{\frac{1}{6}} = \frac{a}{\sqrt{b}}$, where $a, b \in Z$. Determine the value of a and b (4)

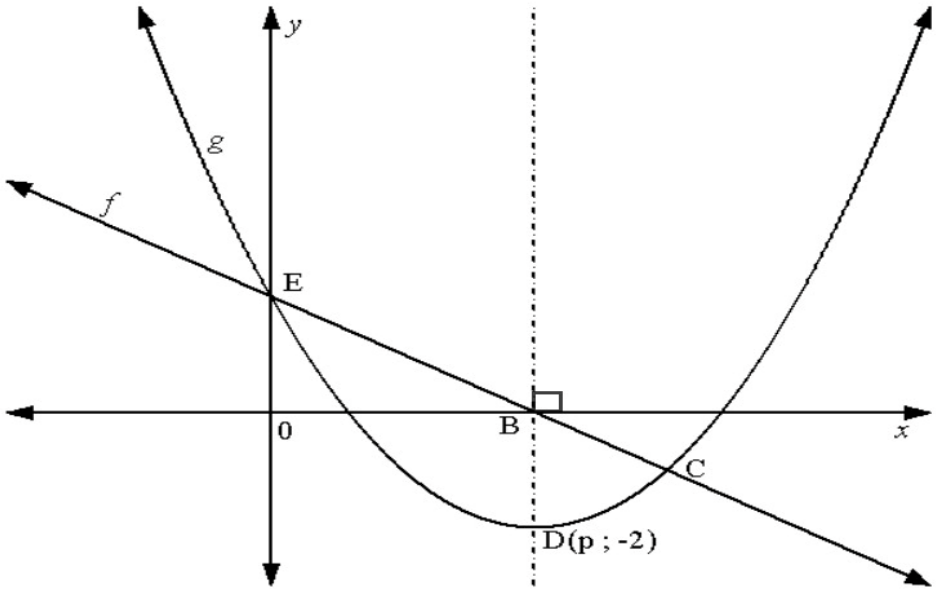
2.4 If $\sqrt{3^x} = 2$, determine the value of $\left(\sqrt{6561}\right)^x$ (4)

2.5 Show that $x^2 + x + 1 = 0$ has no real solutions. (3)

[22]

QUESTION 3

Given: $f(x) = 2 - x$ and $g(x) = (x - p)^2 + q$. E and C are the intersects of f and g. E is the y −intersept of both functions. D$(p\ ;\ -2)$ is the turning point of g and B is the x −intercept of f. The line of symmetry of g through point B is drawn



3.1 Determine the coordinates of B (2)

3.2 Write down the value of p, the x-coordinate of D (1)

3.3 Write down g in the form $g(x) = ax^2 + bx + c$ (3)

3.4 Determine the coordinates of E. (2)

3.5 Calculate the length of EC, leave your answer in simplest surd form. (6)

3.6 If C$(3\ ;-1)$, determine the value(s) of x for which:

3.6.1 $f(x) > g(x)$ (2)

3.6.2 $x \times f(x) \leq 0$ (2)

3.6.3 $f(x) > 16$ (2)

[20]

QUESTION 4

Given: $p(x) = \frac{1}{x-2} + 1$

4.1 Determine the equations of the asymptote of p (2)

4.2 Calculate the x and y intercept of p (4)

4.3 Sketch the graph of p, show all the asymptotes and intercepts with axis. (4)

4.4 The line $y = x - 1$ intersect $p(x)$ at (1;0) and T, determine the coordinates of T (5)

4.5 For which value(s) of x is $p(x) \leq 0$ (2)

[17]

QUESTION 5

The properties of $f(x) = a^x + q$ are given below:

- The range of $f: y \in R, y > 1$
- f passes through point $(3\,;9)$

5.1 Write down the value of q (1)

5.2 Determine the equation of f. (3)

5.3 Is f an increasing or decreasing function? (1)

5.4 Describe the transformation of f to g, if $g(x) = \left(\frac{1}{2}\right)^x - 1$ (3)

5.5 Another function $h(x) = 3^x + 1$ intersect f at P. Calculate the coordinates of P. (3)

[11]

TOTAL MARKS: 100

INFORMATION SHEET

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \qquad M\left(\frac{x_1 + x_2}{2}; \frac{y_1 + y_2}{2}\right)$$

$$y = mx + c \qquad y - y_1 = m(x - x_1) \qquad m = \frac{y_2 - y_1}{x_2 - x_1} \qquad m = \tan\theta$$