



**education**  
**MPUMALANGA PROVINCE**  
**REPUBLIC OF SOUTH AFRICA**

**EHLANZENI DISTRICT**

**GRADE 11**

**MATHEMATICS**

**MARCH 2026**

**MARKS: 50**

**TIME: 1 HOUR**

**This question paper consists of FOUR pages.**

## INSTRUCTIONS AND INFORMATION

1. This question paper consists of THREE questions. Answer ALL the questions.
2. Number the answers correctly according to the numbering system used in this question paper.
3. You may use a non-programmable calculator.
4. You may use appropriate mathematical instruments.
5. Show ALL formulae and substitutions in ALL calculations.
6. Round off your final numerical answers to TWO decimal places.
7. Give brief motivations, discussions, et cetera where required.
8. Write neatly and legibly.



## QUESTION 1

1.1 Solve for  $x$ :

1.1.1  $(x + 2)(-x + 12) = 0$  (2)

1.1.2  $2x^2 - 3x - 3 = 0$  (correct to TWO decimal places) (3)

1.1.3  $-x^2 \leq 5x - 6$  (4)

1.1.4  $\sqrt{x} - 2x^{\frac{1}{4}} = 3$  (4)

1.1.5  $\sqrt{9x + 9} = x + 3$  (5)

1.2 Solve for  $x$  and  $y$  if:

$x + 2y - 3 = 0$

$x^2 - 4xy - x + 4y = 0$  (6)

[24]

## QUESTION 2

2.1 Given the equation:  $A(x) = \frac{\sqrt{x-4}}{x-1}$ , determine the value(s) of  $x$  for which

2.1.1  $A(x)$  is undefined? (1)

2.1.2 Has no real solution? (2)

2.2 For which value(s) of  $k$  will the equation  $4kx^2 - 3x + k = 0$  have real roots? (4)

2.3 Simplify without using a calculator:  $\frac{\sqrt{50} - \sqrt{2}}{\sqrt{8}}$  (4)

2.4 Determine the sum of the digits of  $2^{2026} \times 5^{2022}$  (4)

[15]

**QUESTION 3**

3.1 Given that  $4 \tan x - 3 = 0$  and  $x$  is a reflex angle.

Without using a calculator and with an aid of a diagram, determine the value of:

3.1.1  $\sin x$  (3)

3.1.2  $16 \cos^2 x - 4 \sin x$  (2)

3.2 Given the identity:

$$\frac{\cos x}{1 + \sin x} + \tan x = \frac{1}{\cos x}$$

3.2.1 Prove the identity. (4)

3.2.2 For which value(s) of  $x$  is the identity undefined in the  $x \in [0^\circ; 360^\circ]$ ? (2)

**[11]**

**TOTAL: 50**