Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

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AMATHOLE EAST DISTRICT

GRADE 11

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MARCH CONTROLLED TEST
TERM 1 2026

MATHEMATICS

MARKS : **60**

TIME : **1 HOUR 10 MIN**

This question paper consists of 4 pages, including formulae that might be needed

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of **TWO** questions. Answer ALL the questions.

2. Clearly show ALL calculations that you have used in determining your answer.

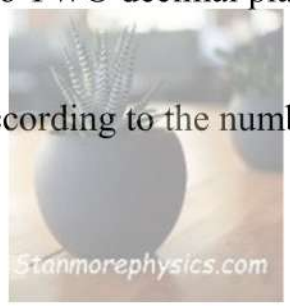
3. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.

4. Answers only will not necessarily be awarded full marks.

5. If necessary, round off answers to TWO decimal places, unless stated otherwise.

6. Number the answers correctly according to the numbering system used in this question paper.

7 Write neatly and legibly.



QUESTION 1

1.1 Solve for x:

1.1.1 $x^2 - 2x = 8$ (3)

1.1.2 $4x^2 - x - 2 = 0$ $(round\ off\ to\ decimal\ places)$ (3)

1.1.3 $x(x-1) \geq 6$ (4)

1.1.4 $2x + \sqrt{x+1} = 1$ (5)

1.1.5 $4.3^x + 3^x = 15$ (3)

1.2 Solve for x and y simultaneously (6)
$4x + y = 7$ and $3x^2 + 2xy = y^2$

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1.3 The roots of the equation are $x = \frac{-3 \pm \sqrt{13-2k}}{4}$
Calculate the value(s) of k for which the roots are real (3)

1.4 Simplify: $\frac{8^k.6^{k-3}.9^{1-k}}{16^{k-1}.3^{-k}}$ (4)

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QUESTION 2

2.1 Given $\tan\alpha = -\frac{9}{40}$ and $180^o < \alpha < 360^o$, determine without using a calculator and by the use of a diagram the value(s) of:

2.1.1 $\sin\alpha$ (2)

2.1.2 $\cos\alpha$ (1)

2.1.3 $sin^2\alpha + cos^2\alpha$ (2)

2.2 Simplify fully:

$$\frac{sin(90^o - x).tan(360^o - x).sin(x - 180^o)}{1 - cos^2 x}$$ (6)

2.3 Simplify without using a calculator

$$\frac{1 - cos^2 17^o + sin^2 17^\circ}{tan17^\circ.cos73^\circ.cos17^\circ}$$ (5)

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2.4 Prove that:

2.4.1 $(1\text{-}cos^2x)\left(tanx + \frac{cosx}{sinx}\right) = tanx$ (5)

2.4.2 For which value(s) of x in the interval $[0; 360]$ is the identity in QUESTION 3.4.1 undefined? (3)

2.5 Determine the general solution of

$2sinAcosA - cosA = 0$ (5)

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TOTAL MARKS 60

FORMULAE

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

$$cos^2\theta + sin^2\theta = 1$$

$$tan\theta = \frac{sin\theta}{cos\theta}$$

