education

MPUMALANGA PROVINCE

REPUBLIC OF SOUTH AFRICA

Stanmorephysics.com

NATIONAL SENIOR CERTIFICATE

GRADE 10

MATHEMATICS

MARCH CONTROLLED TEST

Stanmorephysics.com

24 MARCH 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 3 questions. Answer all questions
2. Clearly show all the calculations
3. An approved calculator (non-programmable and non-graphical) may be used, unless stated otherwise.
4. Number the answers according to the numbering system used in this question paper
5. It is in your own interest to write legibly and to present the work neatly.
6. If necessary, answers should be rounded off to TWO decimal places, unless stated otherwise
7. Diagrams are not drawn according to scale.

QUESTION 1

1.1 Indicate between which two consecutive integers $\sqrt{47}$ lie (2)

1.2 Write $0,\dot{1}\dot{3}$ as a fraction, clearly show all your steps. (3)

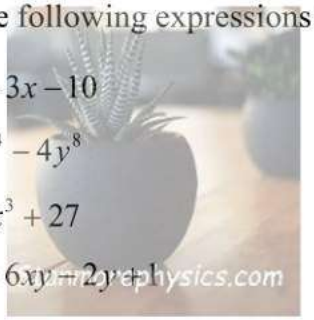
1.3 Factorise the following expressions fully.

1.3.1 $x^2 - 3x - 10$ (2)

1.3.2 $25x^4 - 4y^8$ (2)

1.3.3 $125x^3 + 27$ (2)

1.3.4 $3x - 6xy - 2y + 1$ (3)



1.4 Simplify fully:

1.4.1 $(2x-5)(x^2-2x+3)$ (2)

1.4.2 $\dfrac{x^2-x-2}{x+1}$ (2)

1.4.3 $\dfrac{3^{500}.7^{500}.2^{502}}{42^{500}}$ (2)

[20]

QUESTION 2

2.2 Solve for x in each of the following equation:

2.1.1 $x(5-x)=0$ (2)

2.1.2 $x-2=\frac{8}{x}$ (3)

2.1.3 $x^4=27x$ (3)

2.2 Simplify: $\frac{4^x-3.2^{x+1}-27}{2^x+3}$ (4)

2.3 Solve the following inequality

2.3,1 $-15<1-4x<5$ and $x\in R$ (3)

2.3.2 Represent your answer above on a number line. (2)

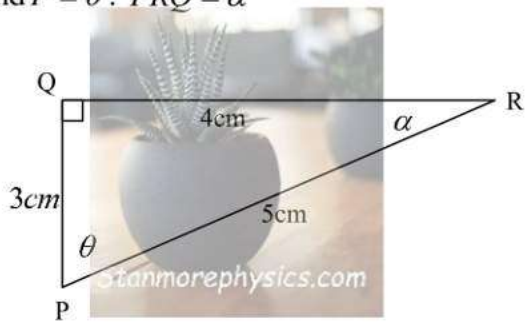
2.4 Solve for x and y simultaneously: (5)

$x+3y=12$
$2x+y=9$

[22]

QUESTION 3

3.1 In ΔPRQ, $QR = 4\,cm$, $PR = 5\,cm$ and $QP = 3cm$. PQ is perpendicular to QR and $\hat{P} = \theta$. $P\hat{R}Q = \alpha$



3.1.1 $\sin\theta$ (1)

3.1.2 $\sec\alpha$ (3)

3.1.3 $\tan\theta$ (1)

3.2 Calculate the size of θ (3)

[8]

TOTAL MARKS: 50