LIMPOPO
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF
EDUCATION

SEKHUKHUNE EAST DISTRICT – DISTRICT ON THE RISE



GRADE 10

MATHEMATICS

TEST 1



11 MARCH 2024

TOTAL MARKS: 50

DURATION: 1 HOUR

This question paper consists of 4 pages including the cover page.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of THREE 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.

Stanmorephysics.com

QUESTION 1

1.1 Show that the decimal $0,\dot{2}\dot{8}$ is a rational number. (3)

1.2 Determine, without the use of a calculator, between which two integers the number $\sqrt{42}$ will lie. (2)

1.3 Factorise the following expressions:

1.3.1 $a^3 - a^2$ (1)

1.3.2 $y^2 - yx - z^2 - zx$ (3)

1.4 Expand and simplify:

1.4.1 $\dfrac{y^2 - y - 6}{y^2 - 3y} \div (y+2)$ (3)

1.4.2 $\dfrac{3^{2x+2} - 9^x}{3^x.3^{2x+1}}$ (3)

1.5 Determine the value of p, if $(x-3)$ is a factor is of $3x^2 - px - 6$ (3)

[18]

QUESTION 2

2.1 Determine the value of x if $x^{\frac{1}{2}} = 5$ (2)

2.2 Solve for x:

2.2.1 $2x - 9 = 3$ (1)

2.2.2 $x(x-6) = 27$ (3)

2.2.3 $2^x = \dfrac{1}{8}$ (2)

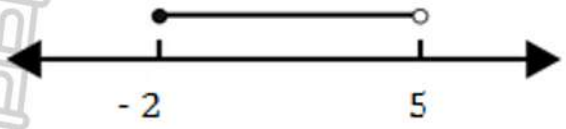
2.2.4 $v^2 = u^2 + 2ax$ (2)

2.3 Solve x and y simultaneously:

$2x + 3y = 4$ and $-6y - 2x = 2$ (4)

2.4 Given: $a + b = 2$ and $a^2 - b^2 = 8$. Determine the value of $b - a$ (3)

2.5 Give an inequality in terms of x, which gives the set of numbers represented on the number line below, for $x \in \mathbf{N}_0$



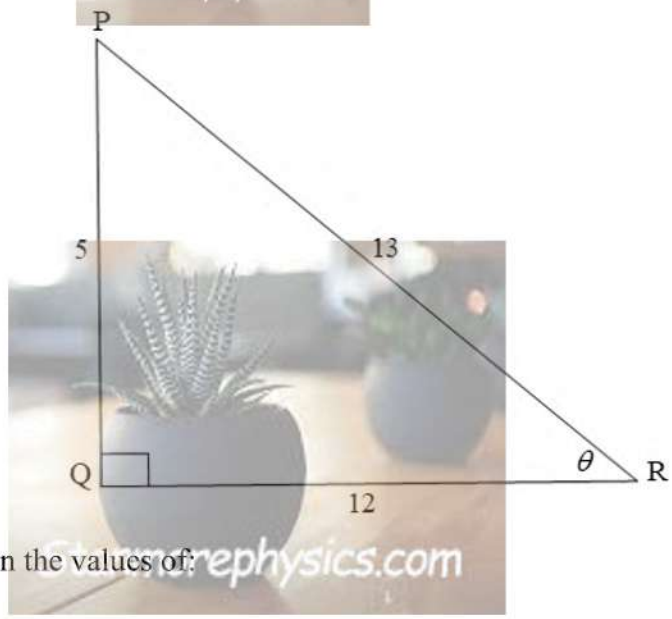
(2)

2.6 Paul is twice Lola's age. Twelve years ago, Paul was three times Lola's age. Determine how old Lola is now. (3)

[22]

QUESTION 3

3.1 In Δ PQR, $\hat{Q} = 90°$ and $\hat{R} = \theta$. PQ $= 5$ units, QR $= 12$ units and PR $= 13$ units.



Write down the values of:

3.1.1 $\sin\theta$ (2)

3.1.2 $\sec\theta$ (2)

3.1.3 $\tan\theta$ (2)

3.2 Without using a calculator, determine the value of:

$\sin^2 45° - \cos 60° + \tan 10° \,.\, \cot 10°$ (4)

[10]

TOTAL: 50 MARKS