MABOPANE & WINTERVELDT PLC

GRADE 10

MATHEMATICS: CONTROL TEST (TERM 1)

20 MARCH 2026

MARKS: 50 **EXAMINER: E Pilusa**

TIME: 1 hour **MODERATOR: LN Llale**

This question paper consists of 5 pages

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions

1. This question paper consists of THREE questions. Answer ALL the questions provided.

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

3. Clearly show ALL calculations, diagrams, graphs etcetera that you have used in determining your answers

4. You may use a non-programmable calculator.

5. Show ALL formulae and substitutions in ALL calculations.

6. Round off your final numerical answers to a minimum of TWO decimal places, if necessary

7. Write neatly and legibly.

QUESTION 1

1.1 State whether the following number is a rational, irrational or neither.

$$-\frac{17}{6}\pi$$ (1)

1.2 Given: $\sqrt{\frac{9}{11-x}}$ and $x\epsilon\{-5; 0; 11\}$
For which value(s) of x will the expression be undefined? (1)

1.3 Determine without the use of a calculator, between which 2 consecutive integers $-\sqrt{23}$ lies. (2)

1.4 Factorize fully:

1.4.1 $x^2 - 8x + 15$ (2)

1.4.2 $3a^2 - 27$ (2)

1.5 Simplify the expression fully:

1.5.1 $(x - 2)(x + 5)$ (2)

1.5.2 $-(3 - 2y)^2$ (3)

1.5.3 $$\frac{x^2 - 4}{2x^2 + 5x + 2} \div \frac{x^3 - 8}{6x + 3}$$ (5)

1.5.4 $$\frac{2.3^x + 3^{x-2}}{5.3^{x+1} - 7.3^{x-1}}$$ (5)

[23]

QUESTION 2

2.1 Solve for x:

2.1.1 $5^{2x-3} = 1$ (3)

2.1.2 $8x^2 + 14x = 15$ (3)

2.1.3 $3x - 4 \leq 5x + 2$ (3)

2.2 Solve for x and y simultaneously: $2x + y = 4$ and $3x - y = 11$ (5)

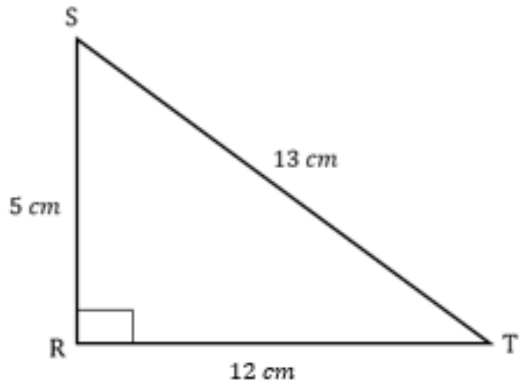
2.3 Nelson is 20 years older than his son. In eight years' time, Nelson will be three times as old as his son.

How old are they now? (5)

[19]

QUESTION 3

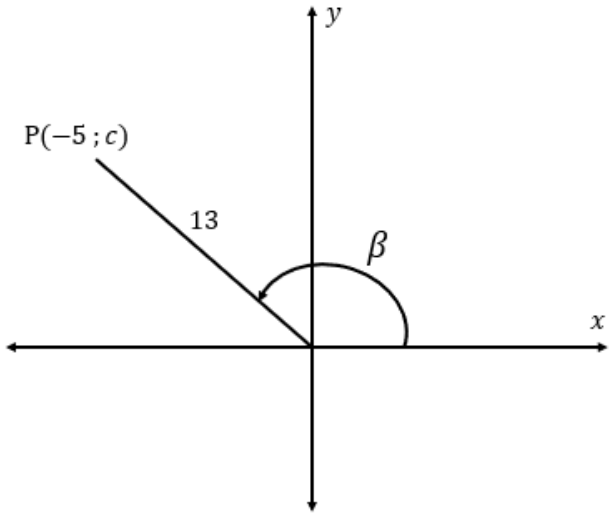
3.1 Use the diagram below to determine:



3.1.1 the value of $\sin T$. (1)

3.1.2 the value of $\tan S$. (1)

3.2 In the diagram below, $P(-5;c)$ and β is the angle between the positive $x-$ axis and OP.



Determine:

3.2.1. the value of c. (2)

3.2.2 the value of $(sin\beta + cos\beta)^2$. (3)

3.2.3 $tan\beta$. (1)

[8]

TOTAL = 50 MARKS