SOSHANGUVE PLC

GRADE 10

MATHEMATICS P1

(TERM 2)

10 JUNE 2026

MARKS: 75

TIME: $1\frac{1}{2}$ HOURS

EXAMINER: ZULU NS

MODERATOR: NKWANYANA

EXTERNAL MODERATOR: MAMPANE LD

This question paper consists of 6 pages

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions

1. This question paper consists of FOUR questions. Answer ALL the questions in the ANSWER SHEET.

2. Start EACH question on a NEW page in the ANSWER SHEET.

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

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

5. You may use a non-programmable calculator.

6. Show ALL formulae and substitutions in ALL calculations.

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

8. Write neatly and legibly.

QUESTION 1

1.1 Given: $A = \frac{1}{\sqrt{3+x}}$ $x \in \{-4; -3; 0; 1; 2; 3; 4\}$

For which value(s) of x will the expression A be:

1.1.1 rational? (1)

1.1.2 undefined? (1)

1.1.3 non-real? (1)

1.2 Factorise the following expression fully :

1.2.1 $2x^2 - 32$ (2)

1.2.2 $p^3 - 216$ (2)

1.2.3 $y^2(y-2) + x^2(2-y)$ (3)

1.3 Simplify the following expression fully:

1.3.1 $(1-t^4)(1-t^2)(1+t^2)$ (3)

1.3.2 $\frac{2x^2 - 2y^2}{x^2 - 2xy + y^2} \div \frac{4x^2 + 4xy}{xy - y^2}$ (5)

1.3.3 $\frac{4^{y-1}.81^{y+1}}{18^y.18^{y+1}}$ (5)

1.4 If x is an even integer and $x > 1$, arrange the following in ascending order:

$-2^x, 2^x, 2^{-x}, 2^{x^0}, 2^{x^2}$ (3)

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QUESTION 2

2.1 Solve for x :

2.1.1 $4^x = \frac{1}{16}$ (2)

2.1.2 $\frac{x+1}{3} - \frac{x-2}{5} - 2 = 0$ (3)

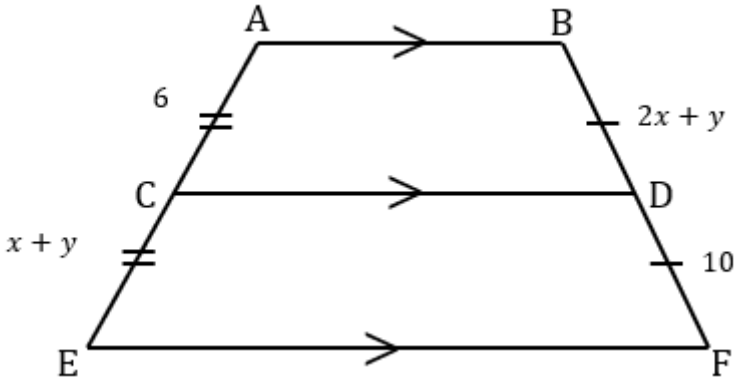
2.1.3 $2x^2 - x - 10 = 0$ (3)

2.2 Solve the following inequality :

$-3 \leq 3 + 2x < 13$

Hence, illustrate your answer on a number line. (4)

2.3 In a trapezium ABFE, AB is parallel to EF. C and D are midpoints of AE and BF respectively. CD is joined and is parallel to both AB and EF. BD = $2x + y$, DF = 10, AC = 6 and CE = $x + y$.



Solve for x and y simultaneously. (5)

2.4 The formula $F = 32 + \frac{9C}{5}$ is used for converting temperature for degrees Celsius (℃) to degrees Fahrenheit (°F).

Make C the subject of the formula. (2)

2.5 Whilst on holiday, a family of 2 adults and 4 children stay at a hotel for 7 days. The hotel charges R300 less per day for a child than an adult. The bill for the 7-day holiday is R21 000. How much does the hotel charge for an adult?
Show all your working details. (4)

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QUESTION 3

3.1 Given the number pattern: 4; - 1; - 6; ….

3.1.1 Write down the next two terms of the pattern (2)

3.1.2 Determine the n^{th} term of the sequence. (3)

3.1.3 Calculate T_{27}, the twenty seventh term of the pattern. (2)

3.1.4 Which term of the pattern is equal to -71? (3)

3.2 Study the following illustration :

$1 \times 1 = 1$

$11 \times 11 = 121$

$111 \times 111 = 12321$

Express 12345654321 as per illustration above. (3)

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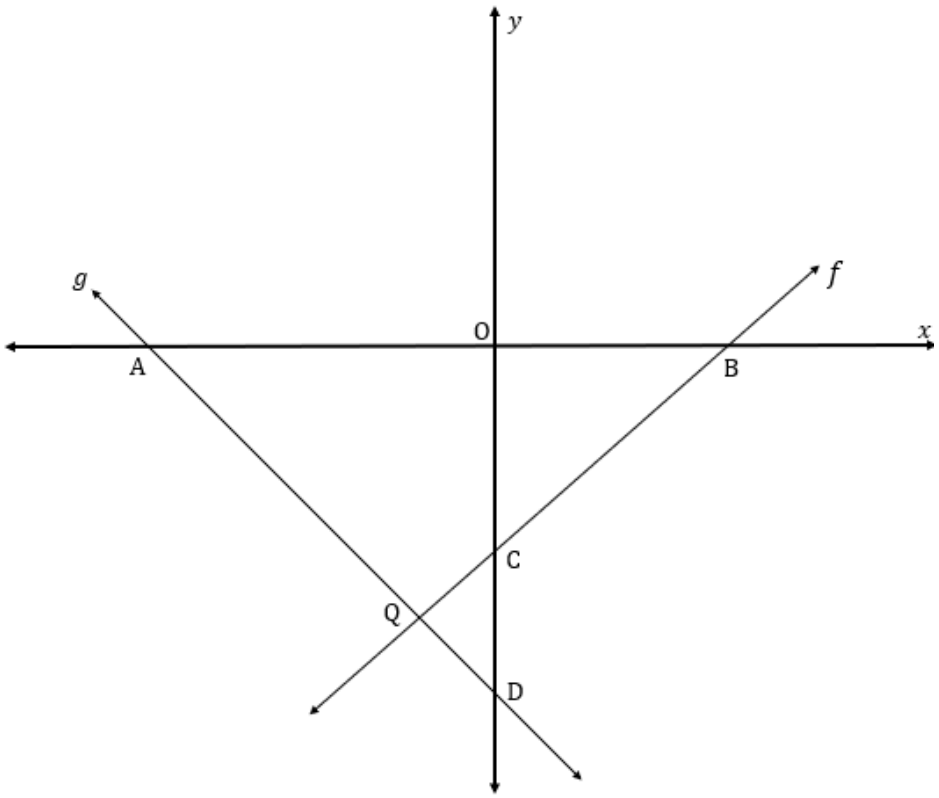
QUESTION 4

4.1 Sketch the graph of $h(x) = 2x - 5$ (3)

4.2 The graphs of $f(x) = \frac{1}{2}x - 4$ and $g(x) = -2x - 14$ are sketched below.
The $x-$ intercepts of graphs f and g are B and A respectively. Graphs f and g meet at point Q.



4.2.1 Show, with necessary calculations, that graphs f and g are perpendicular to each other. (2)

4.2.2 Determine the coordinates of A and B. (3)

4.2.3 Determine the length of CD. (2)

4.2.4 Determine the area of ΔOBC. (3)

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TOTAL: 75