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## MATHEMATICS: EXAMINATION

**GRADE 9 · TERM 3 · SEPTEMBER 2025**

Numeric Patterns · Algebra · Equations · Straight-Line Graphs · Geometry

**TOTAL: 50 MARKS** **TIME: 1 HOUR**

## INSTRUCTIONS AND INFORMATION

1. This question paper consists of SIX questions.
2. Answer ALL the questions.
3. An ANNEXURE is attached for QUESTIONS 1, 4.1.1 and 4.1.4. Write your name in the space provided and hand it in with your answer script.
4. Show all calculations and steps clearly.
5. Calculators may be used, unless stated otherwise.
6. If necessary, round off to TWO decimal places, unless stated otherwise.
7. Number your answers correctly according to the numbering system used in this question paper.
8. It is in your own interest to write legibly and to present neat work.

## QUESTION 1

A pattern is made of blank squares, crossed squares and dots, as shown below.

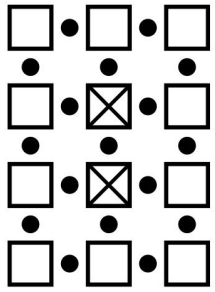


**Figure 1**

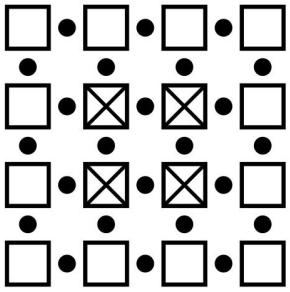


**Figure 2**

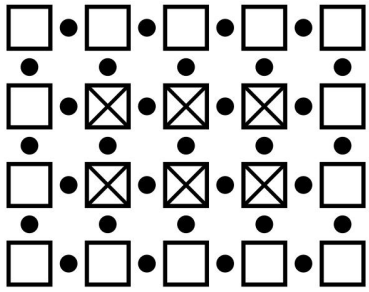


**Figure 3**

| Figure number ($n$) | Number of blank squares ($T$) | Number of crossed squares ($C$) | Number of dots ($D$) |
|---|---|---|---|
| 1 | 10 | | 17 |
| 2 | | | |
| 3 | | 6 | |
| 10 | | | |
| $n$ | $T_n$ = ... | | |

Complete the table above on the ANNEXURE provided. (5)

**[5]**

## QUESTION 2

2.1 Simplify the following:

2.1.1 $2(a - b)^2$ (3)

2.1.2 $\frac{x^2 - 9}{4} \div \frac{x + 3}{2}$ (4)

2.2 Factorise completely:

2.2.1 $a(b + c) + d(b + c)$ (2)

2.2.2 $x^2 + 5x - 50$ (2)

**[11]**

## QUESTION 3

Solve the following equations:

3.1 $3(x + 1) = 2x + 3$ (3)

3.2 $\frac{x - 3}{3} = \frac{x - 1}{4}$ (4)

**[7]**

## QUESTION 4

4.1 Given the following formula of a straight line: $y = 2x + 4$

4.1.1 Complete the following table on the ANNEXURE provided, using the formula above: (1)

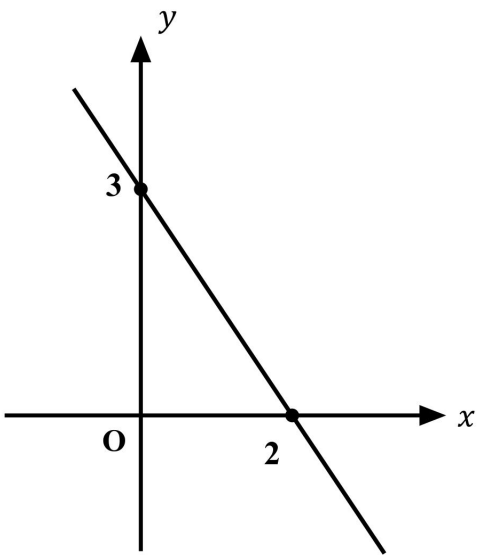
| $x$ | −2 | −1 | 0 | 1 | 2 |
|---|---|---|---|---|---|
| $y$ | | | | | |

4.1.2 Write down the gradient of the above straight line. (1)

4.1.3 Calculate the $x$-intercept and the $y$-intercept. (4)

4.1.4 Draw the straight line on the ANNEXURE provided. (3)

4.2 Given the following straight line:




4.2.1 Is the above graph increasing or decreasing? (1)

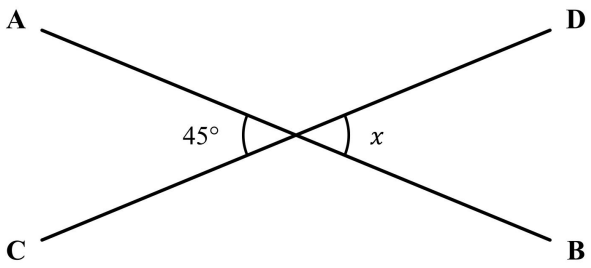
4.2.2 Determine the equation of the above graph. (3)

**[13]**

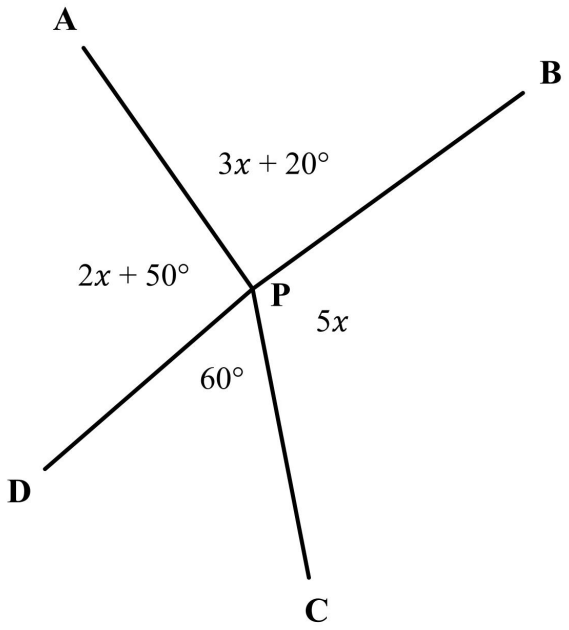
## QUESTION 5

Solve for $x$ in the following diagrams, with reasons.

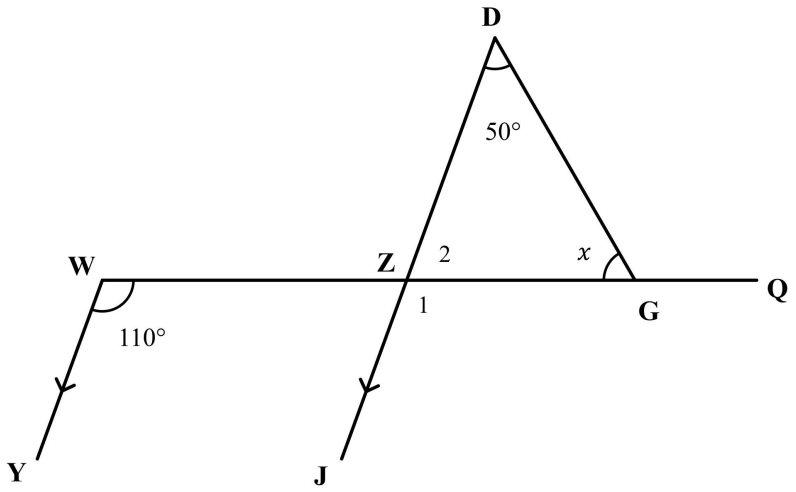
5.1 (2)



5.2 (3)




5.3




5.3.1 Determine, with reasons, the value of $\hat{Z}_1$. (2)

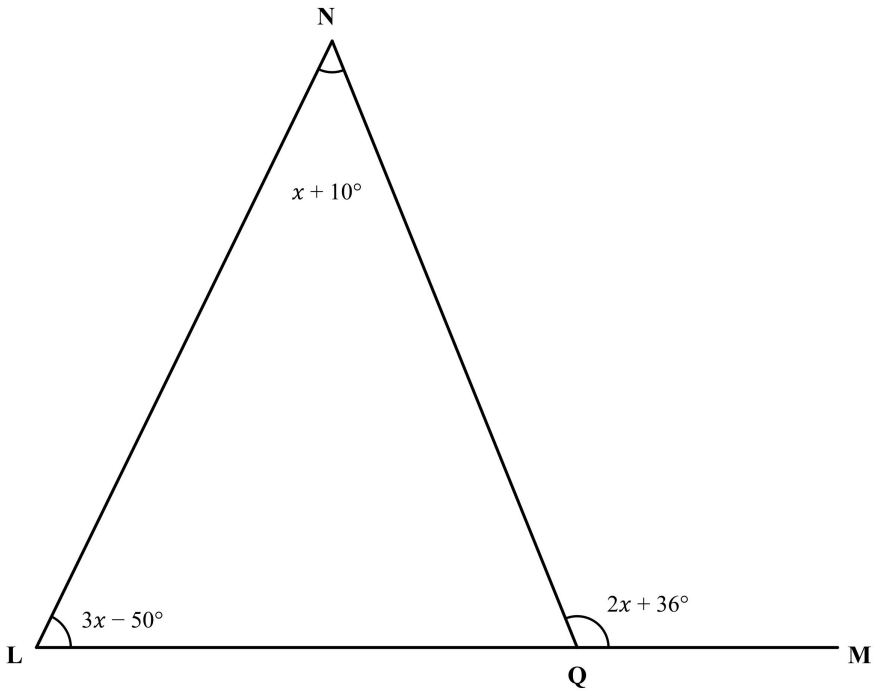
5.3.2 Determine, with reasons, the value of $\hat{Z}_2$. (2)

5.3.3 Determine, with reasons, the value of $x$. (2)

**[11]**

## QUESTION 6

6.1 Solve for $x$ in the following diagram, with reasons. (3)




**[3]**

**TOTAL: 50**

## ANNEXURE

*Hand this annexure in with your answer script.*

NAME: _____ SURNAME: _____

**QUESTION 1** (5)

| Figure number ($n$) | Number of blank squares ($T$) | Number of crossed squares ($C$) | Number of dots ($D$) |
|---|---|---|---|
| 1 | 10 | | 17 |
| 2 | | | |
| 3 | | 6 | |
| 10 | | | |
| $n$ | $T_n$ = ... | | |

**QUESTION 4.1.1** (1)

| $x$ | −2 | −1 | 0 | 1 | 2 |
|---|---|---|---|---|---|
| $y$ | | | | | |

**QUESTION 4.1.4** (3)

