EXAM-STYLE CLASS TEST

MARKS	DURATION	QUESTIONS
34	55 minutes	3

Name: _____ Class: _____

Date: _____

MARK _____ / 34

INSTRUCTIONS AND INFORMATION

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

1.1 Solve for x: $x^2 - 4 > 0$ (1)

A) $x > 2$ only
B) $-2 < x < 2$
C) $x < -2$ or $x > 2$
D) $x > -2$

1.2 Solve for x: $x^2 - 4 < 0$ (1)

A) $x < -2$ or $x > 2$
B) $x < 2$
C) $x < 4$
D) $-2 < x < 2$

1.3 Solve for x: $x(x - 4) + 2(4 - x) \leq 0$ (1)

A) $2 \leq x \leq 4$
B) $0 \leq x \leq 4$
C) $x \leq 2$ or $x \geq 4$
D) $-2 \leq x \leq -4$

1.4 Solve for x: $(x + 1)(x - 5) \geq 0$ (1)

A) $x \geq -1$
B) $x \leq -1$ or $x \geq 5$
C) $x \geq 5$
D) $-1 \leq x \leq 5$

1.5 Solve for x: $x^2 \geq 9$ (1)

A) $-3 \leq x \leq 3$
B) $x \geq -3$
C) $x \geq 3$
D) $x \leq -3$ or $x \geq 3$

1.6 The FIRST step in solving a quadratic inequality is to ... (1)

A) reverse the inequality sign

B) move everything to one side so it is compared with 0, then factorise

C) take the square root of both sides

D) divide both sides by x

1.7 Solve for x: $x^2 + x - 6 \leq 0$ (1)

A) $-3 \leq x \leq 2$

B) $-2 \leq x \leq 3$

C) $x \leq 2$

D) $x \leq -3$ or $x \geq 2$

1.8 If a quadratic has NO real roots and $a > 0$, then $ax^2 + bx + c > 0$ for ... (1)

A) $x > 0$ only

B) $x < 0$ only

C) all real values of x

D) no values of x

1.9 Solve for x: $x^2 < 0$ (1)

A) there is no real value of x

B) all real x

C) $x = 0$

D) $x < 0$

1.10 Solve for x: $(x - 3)^2 > 0$ (1)

A) $x = 3$

B) $x > 3$

C) every real x except $x = 3$

D) all real x

ANSWER GRID — CIRCLE YOUR ANSWERS FOR QUESTION 1

1.1	A	B	C	D
1.2	A	B	C	D
1.3	A	B	C	D
1.4	A	B	C	D
1.5	A	B	C	D
1.6	A	B	C	D
1.7	A	B	C	D
1.8	A	B	C	D
1.9	A	B	C	D
1.10	A	B	C	D

QUESTION 2 [12 MARKS]

Solve for x. Show the critical values and give your answers in interval notation where asked.

2.1 $2x^2 - 5x + 3 < 0$ (4)

2.2 $x^2 - x - 6 \geq 0$ **(4)**

2.3 $-x^2 + 4 > 0$ **(4)**

QUESTION 3 [12 MARKS]

Answer the questions below.

3.1 Solve for x: $x^2 \leq 2x + 8$ **(5)**

3.2 Write your answer to the previous part in interval notation. **(2)**

3.3 For which values of x is the graph of $y = x^2 - x - 6$ BELOW the graph of $y = 2x - 6$? Show all your working. **(5)**

TOTAL: 34 marks

This question paper consists of 3 questions.

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