EXAM-STYLE CLASS TEST

MARKS	DURATION	QUESTIONS
35	55 minutes	3

Name: ..... Class: .....

Date: .....

MARK ____ / 35

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 The turning point of $y = x^2 - 4$ is ... (1)

A) $(0\ ;\ 4)$ **B)** $(0\ ;\ -4)$
C) $(-4\ ;\ 0)$ **D)** $(2\ ;\ 0)$

1.2 The range of $y = x^2 + 2$ is ... (1)

A) $y \leq 2$ **B)** $y \in \mathbb{R}$
C) $y > 2$ **D)** $y \geq 2$

1.3 The x-intercepts of $y = x^2 - 9$ are ... (1)

A) $x = -3$ and $x = 3$ **B)** $x = 9$ only
C) $x = 3$ only **D)** $x = -9$ and $x = 9$

1.4 The graph of $y = -2x^2 + 5$ ... (1)

A) has a minimum turning point **B)** does not cut the y-axis
C) has a maximum turning point **D)** is symmetric about the x-axis

1.5 The axis of symmetry of $y = 3x^2 - 7$ is ... (1)

A) $y = -7$ **B)** $x = 0$
C) $x = 3$ **D)** $x = -7$

1.6 How many times does $y = x^2 + 4$ cut the x-axis? (1)

A) none **B)** once
C) twice **D)** three times

1.7 Compared with $y = x^2$, the graph of $y = x^2 - 5$ is ... (1)

A) 5 units to the right **B)** 5 units to the left

C) 5 units up **D)** 5 units down

1.8 In $y = ax^2 + q$, the value of q is ... (1)

A) the gradient of the graph **B)** one of the x-intercepts

C) the y-value of the turning point **D)** the axis of symmetry

1.9 The domain of $y = 2x^2 + 1$ is ... (1)

A) $x \in \mathbb{R}$ **B)** $x \geq 1$

C) $x \geq 0$ **D)** $y \geq 1$

1.10 $y = ax^2 + q$ has turning point $(0\ ;\ -3)$ and passes through $(1\ ;\ -1)$. The value of a is ... (1)

A) -2 **B)** 2

C) -1 **D)** 4

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]

Given $f(x) = x^2 - 4$.

2.1 Write down whether the parabola opens upwards or downwards, and give a reason. (2)

2.2 Calculate the coordinates of the x-intercepts and the y-intercept. **(4)**

2.3 Write down the coordinates of the turning point and the equation of the axis of symmetry. **(3)**

2.4 Write down the domain and the range of f. **(3)**

QUESTION 3 [13 MARKS]

$g(x) = ax^2 + q$ has a turning point at $(0\ ;\ 8)$ and passes through the point $(2\ ;\ 0)$.

3.1 Write down the value of q, and show that $a = -2$. **(3)**

3.2 Write down the coordinates of the other x-intercept, and give a reason. **(3)**

3.3 Write down the range of g, and explain your answer. **(3)**

3.4 Describe, in words, how $y = x^2$ is changed to give $g(x) = -2x^2 + 8$. **(4)**

TOTAL: 35 marks

This question paper consists of 3 questions.

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