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Curved Graphs

Student Worksheet

Questions, Graph Paper & Working Space

IGCSE Mathematics

Name: _____

Date: _____

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Note

How to use this worksheet. These questions are built *strictly* on the *Curved Graphs* notes: quadratic graphs and their key features, the completed square form, reciprocal graphs and asymptotes, solving equations graphically (including drawing a straight line on an existing curve), cubic and exponential graphs, the gradient of a curve from a tangent, differentiation by the power rule, and turning points, tangents and normals.
Equipment. You will need a sharp pencil, a ruler and an eraser. Graph paper is printed where it is needed — plot your points accurately and join them with a *smooth* curve, never with straight segments and never with a kink at the turning point.
Working space. Ruled lines follow each question. Always show your table of values in full: calculation marks are earned there even if the sketch is imperfect.
Checking your answers. Full step-by-step solutions with drawn graphs, a marking scheme for the exam paper, and a quick answer key are in the separate booklet *"Curved Graphs — Solutions & Answer Key."* Try each question honestly before you look.

1 Part I — Topic-by-Topic Exercises

1.1 Quadratic Graphs and Their Features

Exercise QG1 *[Basic]*

For each quadratic, state whether the parabola opens upward or downward, and write down the coordinates of the y-intercept.

(a) $y = 2x^2 - 7x + 3$

(b) $y = -x^2 + 5x - 6$

(c) $y = 5 - 3x^2$

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Exercise QG2 *[Basic]*

Complete the table of values for $y = x^2 - 4$.

x	-3	-2	-1	0	1	2	3
y							

Hence write down the roots of $x^2 - 4 = 0$ and the coordinates of the y-intercept.

Exercise QG3 *[Standard]*

For the curve $y = x^2 - 6x + 5$, use $x = -\dfrac{b}{2a}$ to find the coordinates of the vertex, and state the equation of the axis of symmetry.

Exercise QG4 *[Standard]*

(a) Complete the table of values for $y = x^2 - 2x - 3$.

(b) Draw the graph of $y = x^2 - 2x - 3$ for $-2 \leq x \leq 4$ on the grid below.

(c) Write down the coordinates of the vertex and the roots.

x	-2	-1	0	1	2	3	4
y	5		-3			0	

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Preview ends here

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