

Cambridge IGCSE Maths 0580 Algebra and graphs Practice Exam

Cambridge IGCSE Mathematics (0580), Core and Extended · 23 questions · 50 marks

Name _____

Date _____

Score / 50

- Answer every question. Show your working: most marks are for method.
- Section A no calculator; Section B calculator allowed.
- Topics: Introduction to algebra; Algebraic manipulation; Indices II; Equations; Inequalities; Graphs in practical situations; Graphs of functions; Sequences; Sketching curves.
- The mark scheme is a separate free PDF: [igcsemathrevision.com/igcse-frontend/downloads/practice-exams/0580/cambridge-igcse-maths-0580-algebra-and-graphs-practice-exam-mark-scheme.pdf](https://www.igcsemathrevision.com/igcse-frontend/downloads/practice-exams/0580/cambridge-igcse-maths-0580-algebra-and-graphs-practice-exam-mark-scheme.pdf)

Section A: no calculator

- Find the value of $3a + 2b$ when $a = 4$ and $b = -5$. [2]
|
- Simplify $5a + 3b - 2a + 4b$. [2]
|
- Simplify [2]
(a) $x^4 \times x^3$ (b) $y^9 \div y^2$
|
- Solve $5x - 7 = 18$. [2]
|
- Write down the inequality shown on each number line. [2]
(a) An open circle at -2 with the line going to the right.
(b) A filled (solid) circle at 3 with the line going to the left.
|
- A straight-line conversion graph passes through $(0, 0)$ and shows that \$50 is worth 45 euros. [2]
(a) Change \$20 into euros.
(b) Change 90 euros into dollars.



7. Complete the table of values for $y = x^2 - 2x - 3$. [2]

x	-2	-1	0	1	2	3	4
y							

8. Find the value of $2x^2 - 3x$ when $x = -2$. [2]

9. Expand and simplify $(x + 4)(x - 3)$. [2]

10. Simplify $20p^6 \div 4p^2$. [2]

11. x is greater than -3 and at most 5 . [2]
(a) Write this as a single inequality.
(b) How many integers satisfy it?

12. Find an expression for the n th term of the sequence $0, 3, 8, 15, 24, \dots$ [2]

13. A distance–time graph shows that a car travels 120 km between $09\ 00$ and $10\ 30$. Work out its average speed. [2]

14. Solve the simultaneous equations. [3]
 $2x + y = 11$
 $x - y = 1$



15. Sketch the graph of $y = (x - 4)(x + 2)$. On your sketch, show the coordinates of the points where the graph meets the axes, and write down the equation of its line of symmetry. [3]



16. The graph of $y = x^3 - 2x$ is drawn. By drawing a suitable straight line on the same grid, the equation $x^3 - 5x + 2 = 0$ can be solved. Find the equation of this straight line. [2]



17. Sketch the graph of $y = x^3 - 4x^2 + 3x$. Show the coordinates of the points where it meets the axes. [3]



Section B: calculator allowed

18. Expand and simplify $(3x - 2)(x + 5)$. [2]



19. (a) Write x^{-3} as a fraction. [2]
(b) Simplify $(2x^3)^2$.



20. Solve $\frac{2x - 3}{4} = 5$. [2]



21. A conversion graph between miles and kilometres is a straight line through $(0, 0)$ and $(5, 8)$, with miles on the horizontal axis. [2]
(a) Change 35 miles into kilometres.
(b) Change 100 km into miles.



22. Complete the table of values for $y = x + \frac{1}{x}$. Give values correct to 2 decimal places where necessary. [2]

x	0.5	1	2	3	4
y					



23. The n th term of a sequence is $3n^2 - 2n$. Which term of the sequence is equal to 645?

[3]

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