

# IGCSE Maths 4MA1 Equations and Sequences Practice Exam

Pearson Edexcel International GCSE Mathematics A (4MA1), Higher tier · 21 questions · 50 marks

Name \_\_\_\_\_

Date \_\_\_\_\_

Score / 50

- Answer every question. Show your working: most marks are for method.
- Calculator allowed.
- Topics: Quadratic Equations; Completing the Square 1; Inverse Proportion; Sequences; Equations 6.
- The mark scheme is a separate free PDF: [igcsemathrevision.com/igcse-frontend/downloads/practice-exams/4ma1/igcse-maths-4ma1-equations-and-sequences-practice-exam-mark-scheme.pdf](https://www.igcsemathrevision.com/igcse-frontend/downloads/practice-exams/4ma1/igcse-maths-4ma1-equations-and-sequences-practice-exam-mark-scheme.pdf)

1. Factorise  $x^2 - 81$ . [1]  
|
2. Write down the coordinates of the turning point of the graph of  $y = (x - 4)^2 + 7$ . [1]  
|
3.  $y$  is inversely proportional to  $x$ .  $y = 10$  when  $x = 2$ . Find the value of  $x$  when  $y = 4$ . [2]  
|
4. 6 workers take 15 days to build a wall. All the workers work at the same rate. How many days would 9 workers take to build the same wall? [2]  
|
5. Find the sum of the first 20 terms of the arithmetic series  $3 + 7 + 11 + 15 + \dots$  [2]  
|
6. Here are the first four terms of a sequence: 7, 11, 15, 19. (a) Write down the next two terms. (b) Write down the term-to-term rule. [2]  
|
7. Solve the simultaneous equations  $2x + 5y = 1$  and  $4x - 5y = 17$ . [3]  
|



8. Factorise  $2x^2 + 7x + 3$ . [2]
9. Find the sum of the first 15 terms of the arithmetic series  $50 + 46 + 42 + \dots$  [2]
10. Write  $x^2 + 5x - 2$  in the form  $(x + p)^2 + q$ . [2]
11. The  $n$ th term of a sequence is  $3n + 8$ . Is 100 a term of the sequence? Give a reason for your answer. [2]
12. Solve the simultaneous equations  $4x + 3y = 25$  and  $3x + 2y = 18$ . [3]
13. Solve the simultaneous equations  $6x + 4y = 7$  and  $4x - 6y = 9$ . [3]
14.  $y$  is inversely proportional to  $x^2$ . When  $x = 4$ ,  $y = 5$ . (a) Find a formula for  $y$  in terms of  $x$ . (3) (b) Find the value of  $y$  when  $x = 10$ . (1) [4]
15. Given that  $x^2 + ax + b \equiv (x - 7)^2 - 15$ , find the value of  $a$  and the value of  $b$ . [2]
16. Find an expression for the  $n$ th term of the sequence  $\frac{2}{5}, \frac{5}{9}, \frac{8}{13}, \frac{11}{17}, \dots$  [2]



17. Solve the simultaneous equations  $0.4x + 1.5y = 3.4$  and  $1.2x - 0.5y = 4.2$ . [3]

18. Solve  $6x^2 + x - 12 = 0$  by factorising. [3]

19.  $p$  is inversely proportional to  $\sqrt{q}$ . When  $q = 9$ ,  $p = 12$ . Find the value of  $p$  when  $q = 16$ . [3]

20. Find the sum of all the multiples of 7 between 1 and 200. [3]

21. Show that  $x^2 - 4x + 9 > 0$  for all values of  $x$ . [3]

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