

IGCSE Maths 4MA1 Graphs and Functions Practice Exam

Pearson Edexcel International GCSE Mathematics A (4MA1), Higher tier · 19 questions · 50 marks

Name _____

Date _____

Score / 50

- Answer every question. Show your working: most marks are for method.
- Calculator allowed.
- Topics: Functions; Regions on Graphs; Real-life Graphs; Trigonometric Graphs.
- The mark scheme is a separate free PDF: [igcsemathrevision.com/igcse-frontend/downloads/practice-exams/4ma1/igcse-maths-4ma1-graphs-and-functions-practice-exam-mark-scheme.pdf](https://www.igcsemathrevision.com/igcse-frontend/downloads/practice-exams/4ma1/igcse-maths-4ma1-graphs-and-functions-practice-exam-mark-scheme.pdf)

1. State the value of x that must be excluded from the domain of $f(x) = \frac{5}{x+4}$. [1]
|
2. A region on a coordinate grid lies to the left of the line $x = 3$, including points on the line. Write down the inequality that describes the region. [1]
|
3. $f(x) = 7x - 4$. Find $f^{-1}(x)$. [2]
|
4. A distance–time graph shows that a cyclist travels 18 km in 45 minutes at a constant speed. Work out the speed of the cyclist in km/h. [2]
|
5. $f(x) = 4 - 3x$. (a) Work out $f(-2)$. (b) Find the value of x for which $f(x) = 19$. [3]
|
6. $g(x) = \frac{1}{\sqrt{x-5}}$. Find the largest possible domain of g . [2]
|
7. $h(x) = 4 - 5x$. Find $h^{-1}(x)$. [2]
|



8. The lines $y = 2x$ and $x + y = 6$ form part of the boundary of a region. Find the coordinates of the point where they meet. [2]
9. Given that $\tan 70^\circ \approx 2.747$, write down (a) another angle between 0° and 360° whose tangent is 2.747, [2]
(b) an angle between 0° and 360° whose tangent is -2.747 .
10. $g(x) = x^2 - 2x$. Solve $g(x) = 15$. [3]
11. A speed–time graph is made of straight lines. A cyclist accelerates at a constant rate from rest to 12 m/s in 6 seconds and then travels at 12 m/s for a further 10 seconds. Work out the total distance travelled in these 16 seconds. [3]
12. How many solutions does the equation $\tan x = 5$ have for $-360^\circ \leq x \leq 360^\circ$? Give a reason. [2]
13. The region R is defined by the inequalities $y > 2x - 3$, $x + 2y \leq 8$ and $y \geq -1$. For each of the points A (2, 3), B(3, 3) and C(0, -2), decide whether the point lies in R. Give a reason for each answer. [3]
14. $f(x) = x^2 + 8x + 19$, where x can be any real number. By completing the square, find the range of f . [3]
15. $f(x) = \frac{3}{2x - 1}$, $x \neq \frac{1}{2}$. Find $f^{-1}(x)$. [3]



16. The region R is defined by $y \geq 1$, $y \leq 2x$ and $x + y < 7$. Find the number of points with integer coordinates in R. [3]
17. A speed–time graph is made of straight line segments joining the points (0, 0), (10, 15), (40, 15) and (55, 0), where time is in seconds and speed is in m/s. Work out the total distance travelled. [3]
18. $f(x) = ax + b$, where a and b are constants. $f(2) = 11$ and $f(-3) = -9$. (a) Find the values of a and b . [4]
(b) Solve $f(2x) = f(x) + 20$.
19. (a) Find the coordinates of the point where the lines $y = 2x$ and $x + y = 9$ meet. (b) The region R is defined by the inequalities $y \leq 2x$, $x + y \leq 9$ and $y \geq 2$. R is a triangle. Find the coordinates of its other two vertices. (c) How many points with integer coordinates lie in R, including its boundary? [6]

End of exam · More free exams: [igcsemathrevision.com/free-practice-exams](https://www.igcsemathrevision.com/free-practice-exams)

