

IGCSE Maths 4MA1 Graphs and Functions Practice Exam: Mark Scheme

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

- M marks are for a correct method; A marks for an accurate answer that follows a correct method; B marks are independent of method.
- Accept any correct method that reaches a correct answer, unless the question says which method to use.
- Practise these topics online with instant feedback: [igcsemathrevision.com/igcse-unit.html?course=igcse&unit=4](https://www.igcsemathrevision.com/igcse-unit.html?course=igcse&unit=4)

Question 1

1 mark

B1 -4

Final answer: $x = -4$

Question 2

1 mark

B1 $x \leq 3$

Final answer: $x \leq 3$

Question 3

2 marks

M1 $y = 7x - 4$ rearranged to $x = (y + 4) \div 7$, or reverses the flow diagram (+4 then $\div 7$)

A1 $(x + 4)/7$ oe

Final answer: $\frac{x + 4}{7}$

Question 4

2 marks

M1 $18 \div 0.75$ or $18 \div 45 \times 60$

A1 24 cao

Final answer: 24 km/h

Question 5

3 marks

B1 10

M1 $4 - 3x = 19$

A1 -5

Final answer: (a) 10 (b) $x = -5$

Question 6

2 marks

M1 $x - 5 > 0$ (the square root must be positive: it cannot be negative, and 0 would mean dividing by 0)

A1 $x > 5$

Final answer: $x > 5$



Question 7**2 marks**

M1 $5x = 4 - y$ or $x = (4 - y)/5$

A1 $(4 - x)/5$ oe

Final answer: $\frac{4 - x}{5}$

Question 8**2 marks**

M1 $x + 2x = 6$

A1 $(2, 4)$

Final answer: $(2, 4)$

Question 9**2 marks**

B1 250°

B1 110° or 290°

Final answer: (a) 250° (b) 110° (or 290°)

Question 10**3 marks**

M1 $x^2 - 2x - 15 = 0$

M1 $(x - 5)(x + 3) = 0$

A1 $x = 5, x = -3$

Final answer: $x = 5$ or $x = -3$

Question 11**3 marks**

M1 $\frac{1}{2} \times 6 \times 12 (= 36)$ or $12 \times 10 (= 120)$

M1 their 36 + their 120

A1 156 m

Final answer: 156 m

Question 12**2 marks**

M1 one solution found (78.7°) and period 180° used

A1 4

Final answer: 4

Question 13**3 marks**

B1 A is in R: $3 > 2 \times 2 - 3 = 1, 2 + 2 \times 3 = 8 \leq 8$ (on the line, which is included) and $3 \geq -1$

B1 B is not in R: $2 \times 3 - 3 = 3$, so B is on the line $y = 2x - 3$, which is not included (strict inequality)

B1 C is not in R: $y = -2$ is less than -1

Final answer: A is in R; B is not in R (on the line $y = 2x - 3$, which is not included); C is not in R (-2 is less than -1)



Question 14**3 marks**

M1 $(x + 4)^2 \dots$

A1 $(x + 4)^2 + 3$

A1 $f(x) \geq 3$

Final answer: $f(x) \geq 3$

Question 15**3 marks**

M1 $y(2x - 1) = 3$ or $2x - 1 = 3/y$

M1 isolates x : $2xy = 3 + y$ or $x = (3/y + 1)/2$

A1 $(x + 3)/(2x)$ oe, e.g. $3/(2x) + 1/2$

Final answer: $\frac{x + 3}{2x}$

Question 16**3 marks**

M1 correct points for at least two values of x , e.g. $x = 1$: (1,1), (1,2)

M1 systematic count for $x = 1$ to 5

A1 12

Final answer: 12

Question 17**3 marks**

M1 area of at least one section, e.g. $\frac{1}{2} \times 10 \times 15 = 75$, $30 \times 15 = 450$ or $\frac{1}{2} \times 15 \times 15 = 112.5$

M1 complete method for the total area, e.g. $\frac{1}{2} \times (30 + 55) \times 15$

A1 637.5 m

Final answer: 637.5 m

Question 18**4 marks**

M1 $2a + b = 11$ and $-3a + b = -9$

A1 $a = 4$, $b = 3$

M1 $8x + 3 = 4x + 3 + 20$

A1 $x = 5$

Final answer: (a) $a = 4$, $b = 3$ (b) $x = 5$



Question 19**6 marks****M1** $x + 2x = 9$ **A1** (3, 6)**B1** (1, 2) and (7, 2)**M1** considers each row $y = 2, 3, 4, 5, 6$ with $y/2 \leq x \leq 9 - y$ (or each column)**M1** at least three correct row counts from 7, 5, 4, 2, 1**A1** 19**Final answer:** (a) (3, 6) (b) (1, 2) and (7, 2) (c) 19End of mark scheme · More free exams: [igcsemathrevision.com/free-practice-exams](https://www.igcsemathrevision.com/free-practice-exams)