PEARSON EDEXCEL INTERNATIONAL GCSE MATHEMATICS A (4MA1) · HIGHER TIER

Expanding and Factorising: exam questions

10 questions · 21 marks · mark schemes at the end

Name _____ Date _____ Score / 21

- Calculators are allowed on both 4MA1 Higher papers (1H and 2H). Show your working: most marks are for method.
- Mark schemes start after the questions. M marks are for a correct method, A marks for an accurate answer that follows a correct method, and B marks for a correct result on its own.
- Online, with more practice: igcsemathrevision.com/igcse-frontend/4ma1/exam-questions/expanding-and-factorising

1. **2 marks**

Expand and simplify $(x + 5)(x - 3)$.

2. **2 marks**

Factorise fully $6x^2y - 9xy^2$.

3. **2 marks**

Factorise $x^2 - 7x + 12$.

4. **2 marks**

Factorise $3x^2 + 10x - 8$.

5. **1 mark**

Factorise $4x^2 - 25$.

6. **3 marks**

Expand and simplify $(2x - 1)(x + 3)(x - 2)$.

7. **2 marks**

Expand and simplify $(3x - 2)^2$.

8. **2 marks**

Factorise fully $2x^2 - 18$.

9. **2 marks**

Factorise $6x^2 - 7x - 3$.

10. **3 marks**

(a) Factorise $a^2 - b^2$. **(1)**

(b) Hence work out $6.8^2 - 3.2^2$. **(2)**

Answers and worked solutions

Question 1 — 2 marks

M1 $x^2 - 3x + 5x - 15$ (three of the four terms correct)

A1 $x^2 + 2x - 15$

Answer: $x^2 + 2x - 15$

Question 2 — 2 marks

M1 a correct partial factorisation, e.g. $3x(2xy - 3y^2)$

A1 $3xy(2x - 3y)$

Answer: $3xy(2x - 3y)$

Question 3 — 2 marks

M1 $(x \pm 3)(x \pm 4)$

A1 $(x - 3)(x - 4)$

Answer: $(x - 3)(x - 4)$

Question 4 — 2 marks

M1 $(3x \pm 2)(x \pm 4)$

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

Answer: $(3x - 2)(x + 4)$

Question 5 — 1 mark

B1 $(2x + 5)(2x - 5)$

Answer: $(2x + 5)(2x - 5)$

Question 6 — 3 marks

M1 two of the brackets expanded correctly, e.g. $(x + 3)(x - 2) = x^2 + x - 6$

M1 $2x^3 + 2x^2 - 12x - x^2 - x + 6$

A1 $2x^3 + x^2 - 13x + 6$

Answer: $2x^3 + x^2 - 13x + 6$

Question 7 — 2 marks

M1 $9x^2 - 6x - 6x + 4$

A1 $9x^2 - 12x + 4$

Answer: $9x^2 - 12x + 4$

Question 8 — 2 marks

M1 $2(x^2 - 9)$

A1 $2(x + 3)(x - 3)$

Answer: $2(x + 3)(x - 3)$

Question 9 — 2 marks

M1 $(3x \pm 1)(2x \pm 3)$

A1 $(3x + 1)(2x - 3)$

Answer: $(3x + 1)(2x - 3)$

Question 10 — 3 marks

(a)

B1 $(a + b)(a - b)$

(b)

M1 $(6.8 + 3.2)(6.8 - 3.2) = 10 \times 3.6$

A1 36

Answer: (a) $(a + b)(a - b)$; (b) 36

Online, with every solution: igcsemathrevision.com/igcse-frontend/4ma1/exam-questions/expanding-and-factorising
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