Expanding and Factorising questions and answers

11 questions · 6 Core, 5 Extended · 10 non-calculator · worked answers

Name _____ Date _____ Score _____

- Original questions in the style of the Cambridge 0580 papers, each labelled Core or Extended and calculator or non-calculator. Try every question before you look at the answers.
- Worked answers start after the questions. Questions with marks come from our 0580 practice bank (M method, A accuracy, B independent marks).
- Online, with more practice: igcsemathrevision.com/igcse-frontend/0580/expanding-and-factorising-questions

Core: for everyone (Papers 1 and 3, and Extended Papers 2 and 4)

1. **Core · non-calculator · easy**

Multiply out the brackets and collect like terms: $4(3x - 2) - 3(x - 5)$.

2. **Core · non-calculator · easy**

Factorise fully $15a^2b - 10ab^2$.

3. **Core · non-calculator · easy · 2 marks**

Expand

(a) $4(2x - 3)$ (b) $x(x + 5)$

4. **Core · calculator · easy · 2 marks**

Factorise

(a) $6x + 15$ (b) $x^2 - 7x$

5. **Core · non-calculator · medium**

Expand and simplify $(x + 7)(x - 3)$.

6. **Core · non-calculator · medium · 2 marks**

Expand and simplify $(x + 4)(x - 3)$.

Extended: for Papers 2 and 4

7. **Extended · non-calculator · medium**

Write $x^2 - 2x - 35$ as the product of two brackets.

8. **Extended · non-calculator · medium**

Factorise $4x^2 - 49$.

9. **Extended · non-calculator · medium**

Factorise $2ax - 6a + bx - 3b$.

10. **Extended · non-calculator · hard**

Factorise $5x^2 + 13x - 6$.

11. **Extended · non-calculator · hard**

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

Answers and worked solutions

Question 1

Answer: $9x + 7$

1. $4(3x - 2) = 12x - 8$ and $-3(x - 5) = -3x + 15$.
2. $12x - 8 - 3x + 15 = 9x + 7$

Question 2

Answer: $5ab(3a - 2b)$

1. The highest common factor of the terms is $5ab$.
2. $15a^2b \div 5ab = 3a$ and $10ab^2 \div 5ab = 2b$.

Question 3 — 2 marks

Answer: (a) $8x - 12$ (b) $x^2 + 5x$

B1 (a) $8x - 12$

B1 (b) $x^2 + 5x$

Question 4 — 2 marks

Answer: (a) $3(2x + 5)$ (b) $x(x - 7)$

B1 (a) $3(2x + 5)$

B1 (b) $x(x - 7)$

Question 5

Answer: $x^2 + 4x - 21$

1. $x \times x = x^2$, $x \times (-3) = -3x$, $7 \times x = 7x$, $7 \times (-3) = -21$
2. $x^2 - 3x + 7x - 21 = x^2 + 4x - 21$

Question 6 — 2 marks

Answer: $x^2 + x - 12$

M1 at least three of x^2, $-3x$, $+4x$, -12

A1 $x^2 + x - 12$

Question 7

Answer: $(x - 7)(x + 5)$

1. Find two numbers that multiply to -35 and add to -2: -7 and 5.

Question 8

Answer: $(2x + 7)(2x - 7)$

1. This is a difference of two squares: $(2x)^2 - 7^2$.
2. $a^2 - b^2 = (a + b)(a - b)$

Question 9

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

1. Group in pairs: $2a(x - 3) + b(x - 3)$.
2. $(x - 3)$ is a common factor.

Question 10

Answer: $(5x - 2)(x + 3)$

1. $5 \times (-6) = -30$. Two numbers that multiply to -30 and add to 13: 15 and -2.
2. $5x^2 + 15x - 2x - 6 = 5x(x + 3) - 2(x + 3) = (5x - 2)(x + 3)$

Question 11

Answer: $2x^3 + 5x^2 - x - 6$

1. $(x + 2)(x - 1) = x^2 + x - 2$
2. $(x^2 + x - 2)(2x + 3) = 2x^3 + 3x^2 + 2x^2 + 3x - 4x - 6$
3. $= 2x^3 + 5x^2 - x - 6$

More expanding and factorising practice with instant marking, notes and common mistakes: igcsemathrevision.com/igcse-frontend/0580/expanding-and-factorising-questions

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