

Algebra 2 — Factorising Quadratic Equations

LCHL · Algebra | Tutorial questions & answers | gktuition.ie

ON THE LCHL PAST PAPERS · 2025 P1 Q1(c) (deferred, 10 marks) · 2025 P1 Q1(c) (main sitting, 10 marks) · 2025 P1 Q2(b)(i) (deferred, 5 marks) · 2025 P1 Q4(a) (deferred, 10 marks) · 2025 P1 Q6(b)(ii) (main sitting, 10 marks) · 2024 P1 Q1(a) (main sitting, 10 marks) · 2024 P1 Q1(c) (deferred, 10 marks) · 2024 P1 Q7(b)(ii) (deferred, 20 marks) · 2024 P1 Q9(b)(ii) (main sitting) · 2023 P1 Q6(a)(i) (main sitting, 10 marks) · 2022 P1 Q4(b)(ii) (main sitting, 10 marks) · 2022 P1 Q5(b)(i) (main sitting, 15 marks) · 2021 P1 Q10(a)(i) (main sitting, 5 marks) · 2021 P1 Q2(b) (main sitting, 20 marks) · 2021 P1 Q3(b)(i) (main sitting, 10 marks) · 2021 P1 Q3(b)(ii) (main sitting, 10 marks) · 2020 P1 Q3(b)(ii) (main sitting, 10 marks) · 2020 P1 Q7(a)(ii) (main sitting, 5 marks) · 2020 P1 Q7(b)(iii) (main sitting, 5 marks) · 2019 P1 Q1(b) (main sitting, 15 marks) · 2019 P1 Q4(b)(ii) (main sitting, 10 marks) · 2019 P2 Q6(b) (main sitting, 15 marks) · 2018 P1 Q2(b) (main sitting, 10 marks) · 2017 P1 Q5(a) (main sitting, 15 marks) · 2016 P1 Q2(b) (main sitting, 15 marks) · 2016 P1 Q3(b) (main sitting, 10 marks) · 2016 P1 Q5(a)(i) (main sitting, 10 marks) · 2016 P1 Q7(b)(i) (main sitting, 10 marks) · 2015 P1 Q5(a) (main sitting, 10 marks) · 2015 P2 Q9(c)(ii) (main sitting, 10 marks)

How to use this worksheet: these are the exact questions worked in this tutorial, in order. Try each one yourself first — the time it is posed in the video is shown, so you can pause before Paul solves it. Final answers are at the back; the full method is in the video.

Formula used

$$x = (-b \pm \sqrt{b^2 - 4ac}) / 2a$$

Page 20 of the log tables — the fallback when no integer pair exists. The video's method first: find two numbers with product $a \times c$ and sum b , then split the middle term.

Worked examples (in the video)

Example 1. $x^2 + 12x + 35$ — monic, leading coefficient 1 (worked 00:39–04:41).

Example 2. $2x^2 - x - 6$ — non-monic, leading coefficient 2 (worked 04:41–08:55).

Questions

Factorise each of the following

A1. $x^2 - 8x + 15$

Posed at 08:55 in the tutorial.

A2. $x^2 + 3x - 28$

Posed at 08:55 in the tutorial.

A3. $x^2 + 7x + 10$

Posed at 08:55 in the tutorial.

A4. $x^2 - 5x + 6$

Posed at 08:55 in the tutorial.

A5. $2x^2 - 3x - 2$

Posed at 08:55 in the tutorial.

B1. $3x^2 - 7x + 2$

Posed at 08:55 in the tutorial.

B2. $3x^2 + 19x - 14$

Posed at 08:55 in the tutorial.

B3. $3x^2 - 13x - 10$

Posed at 08:55 in the tutorial.

B4. $5x^2 - 13x - 6$

Posed at 08:55 in the tutorial.

B5. $5x^2 - 13x + 6$

Posed at 08:55 in the tutorial.

Answers

You can find the final answers to these questions below — pause the video and check yourself; the worked method is in the tutorial.

Example 1. $(x + 5)(x + 7)$

Example 2. $(2x + 3)(x - 2)$

A1. $(x - 3)(x - 5)$

A2. $(x + 7)(x - 4)$

A3. $(x + 5)(x + 2)$

A4. $(x - 2)(x - 3)$

A5. $(2x + 1)(x - 2)$

B1. $(3x - 1)(x - 2)$

B2. $(3x - 2)(x + 7)$

B3. $(3x + 2)(x - 5)$

B4. $(5x + 2)(x - 3)$

B5. $(5x - 3)(x - 2)$

Overlaps with these tutorials

Algebra 1 — JC Factorising. The other three factorising types (DOTS, common factor, grouping). Do Algebra 1 first.

Algebra 6 — Inequalities. Every quadratic inequality starts with exactly this factorisation.

Algebra 11 — Solving Cubic Equations. After long division you finish by factorising the quotient the algebra-2 way.