

LCOL Algebra 14 — Solving Quadratic Equations

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ON THE LCOL PAST PAPERS · Examined in 13 question-parts, 2015–2025 (main sittings)
| 2025: P1 Q9(b)(v) · 2024: P1 Q9(d)(i), P1 Q9(d)(ii) · 2022: P1 Q6(c), P1 Q10(a)(iii) ·
2021: P1 Q3(a), P1 Q5(b) · 2020: P1 Q5(a), P1 Q8(b)(ii), P1 Q9(c)(ii) · 2018: P1 Q4(d) ·
2017: P1 Q8(b) · 2015: P1 Q5(a)

How to use this sheet: 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.

Worked examples (in the video)

Example 1. Solve $x^2 + 7x + 12 = 0$. (worked 00:50–03:00).

Example 2. Solve $3x^2 - 23x + 14 = 0$. (worked 03:22–05:38).

Example 3. Solve $3x^2 - 9x = 0$ (no plain number → common-factor method). (worked 05:42–08:22).

Questions

Q1(i). Solve $x^2 - 2x - 15 = 0$.

Posed at 08:50 in the tutorial.

Q1(ii). Solve $5x^2 + 36x + 7 = 0$.

Posed at 09:41 in the tutorial.

Q1(iii). Solve $x^2 - 7x = 0$.

Posed at 10:58 in the tutorial.

Q1(iv). Solve $16x^2 - 1 = 0$.

Posed at 12:26 in the tutorial.

Q1(v). Solve $x^2 - 6x + 9 = 0$.

Posed at 14:12 in the tutorial.

Answers

Final answers only — pause the video and check yourself; the worked method is in the tutorial.

Example 1. $(x + 3)(x + 4) = 0 \rightarrow x = -3$ or $x = -4$

Example 2. $(3x - 2)(x - 7) = 0 \rightarrow x = \frac{2}{3}$ or $x = 7$

Example 3. $3x(x - 3) = 0 \rightarrow x = 0$ or $x = 3$

Q1(i). $(x + 3)(x - 5) = 0 \rightarrow x = -3$ or $x = 5$

Q1(ii). $(5x + 1)(x + 7) = 0 \rightarrow x = -\frac{1}{5}$ or $x = -7$

Q1(iii). $x(x - 7) = 0 \rightarrow x = 0$ or $x = 7$

Q1(iv). $(4x - 1)(4x + 1) = 0 \rightarrow x = \frac{1}{4}$ or $x = -\frac{1}{4}$

Q1(v). $(x - 3)(x - 3) = 0 \rightarrow x = 3$ (a repeated root)

Overlaps with these tutorials

LCOL Algebra 11 — Factorising 4 (quadratics). You must factorise before you can solve — do the four factorising lessons (8-11) first.

LCOL Algebra 15 — The $-b$ Formula. When the quadratic won't factorise into whole numbers, the $-b$ formula solves it. Use it when the exam says 'to two decimal places' or 'in surd form'.

LCOL Algebra 16 — Sketching Quadratic Curves. The solutions you find here are exactly where the curve crosses the x-axis (the roots).