

Algebra 1 — Revision Of Junior Cert Factorising

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ON THE LCHL PAST PAPERS · 2024 P1 Q1(a) (deferred, 10 marks) · 2024 P1 Q1(b) (deferred, 10 marks) · 2020 P1 Q7(b)(ii) (main sitting, 5 marks) · 2019 P1 Q3(a) (main sitting, 5 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

$$a^2 - b^2 = (a - b)(a + b)$$

TYPE 1 of the three JC patterns — recognise it on sight. TYPE 2: pull out the common factor. TYPE 3: group, factor each pair, factor out the common bracket.

Worked examples (in the video)

Example 1. TYPE 1 — difference of two squares: $49x^2 - 25y^2$ (worked 01:00-02:44).

Example 2. TYPE 2 — factoring out the common term: $7x^2 + 14$ (worked 02:44-03:55).

Example 3. TYPE 3 — factor by grouping: $6x^2 - 2xz - 3xy + yz$ (worked 03:55-07:36).

Questions

Factorise each of the following

Q1.i. $9x^2 - 100$

Posed at 07:47 in the tutorial.

Q1.ii. $3x^2 - 12x$

Posed at 07:47 in the tutorial.

Q1.iii. $21xy + 3y - 7x - 1$

Posed at 07:47 in the tutorial.

Q1.iv. $50x^2 - 32$

Posed at 07:47 in the tutorial.

Q1.v. $6x^2 - 7 - 21x + 2x$

Posed at 07:47 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. $(7x + 5y)(7x - 5y)$

Example 2. $7(x^2 + 2)$

Example 3. $(2x - y)(3x - z)$

Q1.i. $(3x + 10)(3x - 10)$

Q1.ii. $3x(x - 4)$

Q1.iii. $(3y - 1)(7x + 1)$

Q1.iv. $2(5x - 4)(5x + 4)$

Q1.v. $(2x - 7)(3x + 1)$ (equivalent to the board's $(2x - 7)(1 + 3x)$)

Overlaps with these tutorials

Algebra 2 — Factorising Quadratics. The fourth factorising type (split the middle term); together the two videos cover every LCHL factorisation. Do this one first.

Algebra 3 — Factorising Cubes. Completes the factorising toolkit — and its trinomial bracket is deliberately NOT a perfect square, a direct call-back to TYPE 1 here.

Algebra 5 — Fractions Part 2. Every cancellation step in algebraic fractions starts with these three types.