

JCHL Algebra 17 — Long Division

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ON THE JC PAST PAPERS · 2025 JCHL Q11(b)

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. Divide $x + 3$ into $x^2 + 7x + 12$ (divide, multiply, subtract, bring down).
(worked 00:57-06:00).

Example 2. Divide $x + 1$ into the cubic $x^3 + 4x^2 + 5x + 2$. (worked 06:16-13:07).

Example 3. Divide $x^2 + 3x + 2$ into $x^3 + 4x^2 + 5x + 2$ (the factors swap, like $12 \div 4 = 3$ and $12 \div 3 = 4$). (worked 13:54-17:14).

Example 4. Divide $3x - 2$ into $36x^3 - 28x + 8$ (no x^2 term — fill the gap with $0x^2$).
(worked 18:11-24:09).

Questions

Q1. Divide $x - 7$ into $2x^2 - 17x + 21$.

Posed at 25:26 in the tutorial.

Q2. $x + 2$ is a factor of $3x^2 - x - 14$ — find the other factor.

Posed at 26:59 in the tutorial.

Q3. Divide $x + 2$ into $x^3 + 8$ (two missing terms — write $x^3 + 0x^2 + 0x + 8$).

Posed at 28:40 in the tutorial.

Answers

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

Example 1. $x + 4$ (remainder 0)

Example 2. $x^2 + 3x + 2$

Example 3. $x + 1$

Example 4. $12x^2 + 8x - 4$

Q1. $2x - 3$

Q2. $3x - 7$

Q3. $x^2 - 2x + 4$

Overlaps with these tutorials

Builds on: Algebra 10 (factorising quadratics — another way to split them up).

Next: Algebra 18 — Inequalities 1.