

Algebra 7 — Rational Inequalities

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ON THE LCHL PAST PAPERS · 2023 P1 Q2(a) (deferred, 10 marks) · 2022 P1 Q3(c) (deferred, 10 marks) · 2018 P1 Q1(b) (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.

Worked examples (in the video)

Intro example. $(4x - 1)/(x - 3) \leq 2$ (worked 00:08–07:20).

Questions

Solve each inequality

Q1.i. $\frac{x-3}{x+4} \geq 2$

Posed at 07:20 in the tutorial.

Q1.ii. $\frac{3x+1}{x-1} \geq 2$

Posed at 07:20 in the tutorial.

Q1.iii. $\frac{2x-5}{x-3} \leq \frac{5}{2}$

Posed at 07:20 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.

Intro example. $-5/2 \leq x < 3$

Q1.i. $-11 \leq x < -4$

Q1.ii. $x \leq -3$ or $x > 1$

Q1.iii. $x < 3$ or $x \geq 5$

Overlaps with these tutorials

Algebra 6 — Inequalities. The read-off-the-parabola step is lifted directly from there. Do Algebra 6 first.

Algebra 4 — JC Fractions. Same denominator-clearing instinct, but equations let you cross-multiply — inequalities don't.

Algebra 2 — Factorising Quadratics. Factorises every quadratic that emerges.