

JCHL Algebra 18 — Inequalities 1

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ON THE JC PAST PAPERS · 2024 JCHL Q11(c) — 15 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)

Example 1. Solve $6x + 5 < 17$, $x \in \mathbb{N}$, and graph it. (*worked 06:09–09:41*).

Example 2. Solve $-3x + 4 \geq 10$, $x \in \mathbb{Z}$, and list the solution set (multiplying by -1 FLIPS the sign). (*worked 09:41–15:44*).

Example 3. Solve $5x - 2 > 8$, $x \in \mathbb{R}$, and graph it (shade the line; open circle for $>$). (*worked 15:44–20:05*).

Questions

Part 1. Solve $5x - 6 \geq 9$, $x \in \mathbb{N}$, and graph it.

Posed at 20:05 in the tutorial.

Part 2. Solve $-2x - 5 \leq 1$, $x \in \mathbb{Z}$, and graph it.

Posed at 21:17 in the tutorial.

Part 3. Solve $2x - 4 > -7$, $x \in \mathbb{R}$, and graph it.

Posed at 23:35 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. $x < 2 \rightarrow$ the only natural number is 1

Example 2. $x \leq -2 \rightarrow [-2, -3, -4, \dots]$

Example 3. $x > 2$ — open circle at 2, shade right

Part 1. $x \geq 3 \rightarrow$ mark 3, 4, 5, ...

Part 2. Flip $\rightarrow x \geq -3 \rightarrow$ mark $-3, -2, -1, 0, \dots$

Part 3. $x > -\frac{3}{2}$ — open circle at -1.5 , shade right

Overlaps with these tutorials

Builds on: Algebra 5 (solving equations — inequalities are solved the same way).

Next: Algebra 19 — Simultaneous Equations.