

35 Prove  $-\infty < y < \infty \wedge y \neq 0 \Rightarrow (x/y=z \iff x=z \times y)$ .

After trying the question, scroll down to the solution.

## Solutions

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$$\begin{aligned} & \Rightarrow \quad -\infty < y < \infty \wedge y \neq 0 \\ & \quad \left( \begin{array}{l} x/y = z \quad \text{use cancellation for } \times \text{ to multiply both sides of the equation by } y \\ = y \times (x/y) = y \times z \quad \text{associativity} \\ = (y \times x) / y = y \times z \quad \text{symmetry of } \times \text{ twice} \\ = (x \times y) / y = z \times y \quad \text{associativity} \\ = x \times (y/y) = z \times y \quad \text{inverse} \\ = x \times 1 = z \times y \quad \text{identity} \\ = x = z \times y \end{array} \right) \end{aligned}$$