

Proof without words: Limit of a recursive sequence

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$$x_0 > 0 \quad \& \quad x_{n+1} = \frac{x_n}{2} + \frac{2}{x_n} \quad \longrightarrow \quad \lim_{n \rightarrow \infty} x_n = 2$$

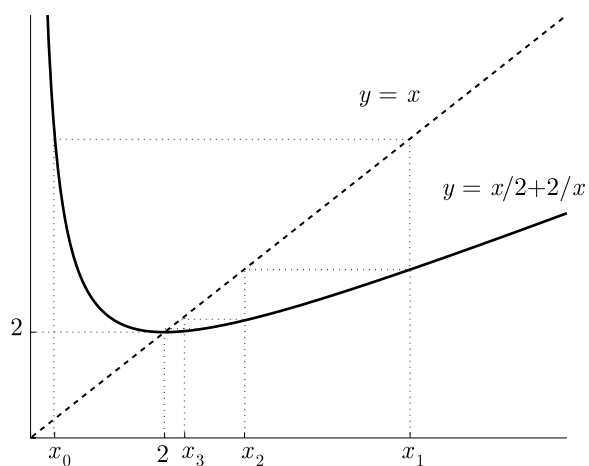


Figure 1. $0 < x_0 < 2$

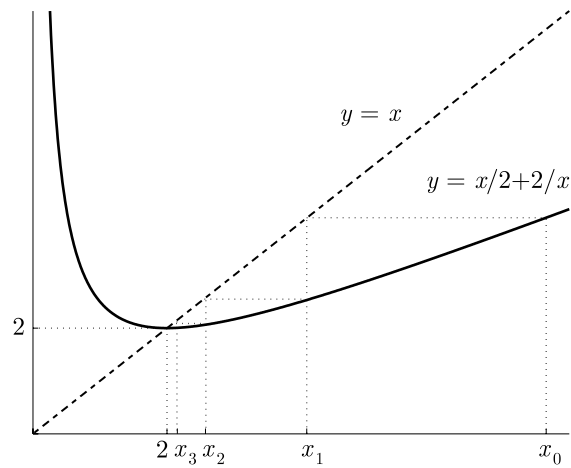


Figure 2. $2 < x_0 < +\infty$

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