## Snippet 1

 $March\ 22,\ 2020$ 

$$a_{n+1} - b_{n+1} = \frac{\left(\sqrt{a_n} - \sqrt{b_n}\right)^2}{2} = \frac{\left(a_n - b_n\right)^2}{2\left(\sqrt{a_n} + \sqrt{b_n}\right)^2} \le \frac{\left(a_n - b_n\right)^2}{2b_n^2}$$