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"In Between" Solution

Find the range of values of x for which

$$\sqrt{x}+1/\sqrt{x}<4,$$

Where $\sqrt{x}$ is the positive root.

Rather than solving this problem algebraically, I thought that it would be simpler to solve graphically. Using a little bit of logic, I decided that the original inequality, $\sqrt{x} + 1/\sqrt{x} < 4$ could be separated into two equations, $y = \sqrt{x} + 1/\sqrt{x}$ and $y = 4$. Using this method, I was able to isolate the intersections of the two equations, finding exactly where the first function, $y = \sqrt{x} + 1/\sqrt{x}$, was less than four.

Using the online graphing software Desmos, I graphed both equations and found their intercepts, (0.072, 4) and (13.928, 4). Knowing that in the original inequality the equation had to be less than four, I was able to set up a new inequality, 0.072<x<13.928, because this is where the function $y = \sqrt{x} + 1/\sqrt{x}$ was less than four. Also, just to make things a bit cleaner, I converted the decimals to fractions, giving me a final answer of
9/125<x< 1742/125 (work and graph follows).

0.072 = 72/1000   (72/1000) / (8/8) = 9/125
13.928 = 13928/1000 (13928/1000) / (8/8) = 1741/125