Simplifying the fraction under the radical results in $\sqrt[3]{\dfrac{54x^{7-1}y^{17-3}}{125z^{16-10}}} = \sqrt[3]{\dfrac{54x^6y^{14}}{125z^6}}$. Pulling out third powers results in the simplified expression $\dfrac{3x^2y^4}{5z^2}\sqrt[3]{2y^2}$.