

$$y = 8\sqrt[4]{x} \Rightarrow x = \frac{1}{8^4}y^4, \text{ so } A = \frac{1}{8^4} \int_0^8 y^4 dy = \frac{1}{8^4} \left[ \frac{1}{5}y^5 \right]_0^8 = \frac{8}{5}.$$