

Answer on Question #47022 – Math – Algebra

$$\sqrt{8^{x-3}} = \sqrt[3]{4^{2-x}}$$

Solution:

$$\begin{aligned}\sqrt{8^{x-3}} &= \sqrt[3]{4^{2-x}} \\ 8^{\frac{x-3}{2}} &= 4^{\frac{2-x}{3}} \\ (2^3)^{\frac{x-3}{2}} &= (2^2)^{\frac{2-x}{3}} \\ 2^{\frac{3(x-3)}{2}} &= 2^{\frac{2(2-x)}{3}} \\ \frac{3(x-3)}{2} &= \frac{2(2-x)}{3} \\ 9(x-3) &= 4(2-x) \\ 9x - 27 &= 8 - 4x \\ 13x &= 35 \\ x &= \frac{35}{13}\end{aligned}$$

Answer: $x = \frac{35}{13}$