solve the logarithmic equation:

$$x = (\log_2 \sqrt{2})^3$$

Solution:

1) $\sqrt{2} = 2^{\frac{1}{2}}$ => $(\log_2 \sqrt{2})^3 = (\log_2 2^{1/2})^3$
2) Delivers the power of two of the logarithm in accordance with the property of the logarithm => $(\log_2 2^{1/2})^3 = (\frac{1}{2}\log_2 2)^3$
3) $\log_2 2 = 1$ => $(\frac{1}{2}\log_2 2)^3 = (\frac{1}{2} * 1)^3$
4) We raise this expression to the cube and get $(\frac{1}{2} * 1)^3 = \frac{1}{8}$

$$x = (\log_2 \sqrt{2})^3 = (\log_2 2^{1/2})^3 = (\frac{1}{2}\log_2 2)^3 = \frac{1}{8}$$

Answer: x=1/8