8 (256)

$$\left(\frac{1}{4}\right)^{\log_8 \frac{1}{216}} = \left(2^{-2}\right)^{\log_8 216^{-1}} = 2^{-2\log_8 216^{-1}} =$$

$$= 2^{-2(-1)\log_8 216} = 2^{2\log_8 216} = 2^{2\cdot\frac{1}{3}\log_2 216} = 2^{\frac{2}{3}\log_2 216}$$

$$= 2^{\log_2 216^{2/3}}$$

$$= 216^{2/3} = \left(6^3\right)^{2/3} =$$

$$= 6^2 = 36$$

$\log_8 216 = x$

$8^x = 216$

$2^{3x} = 216$

$\log_2 216 = 3x$

$\boxed{\frac{1}{3}\log_2 216 = x}$