

$$\frac{1}{3^x + 3^x + 3^x} = 27$$

$$\frac{1}{3^x(1+1+1)} = 27$$

$$\frac{1}{3^x \cdot 3} = 27$$

$$\frac{1}{3^{x+1}} = 27$$

$$3^{-x-1} = 3^3$$

$$-x-1=3$$

$$-x=1+3$$

$$-x=4$$

$$\boxed{x=-4}$$