

$$9^x + 4^x - 6^x = 7 \cdot 6^{x-1}$$

$$9^x + 4^x - 6^x = \frac{7}{6} \cdot 6^x$$

$$9^x + 4^x = \frac{13}{6} \cdot 6^x \quad | \div 6^x$$

$$\left(\frac{9}{6}\right)^x + \left(\frac{4}{6}\right)^x = \frac{13}{6}$$

$$\left(\frac{3}{2}\right)^x + \left(\frac{2}{3}\right)^x = \frac{13}{6}$$

$$\left(\frac{3}{2}\right)^x + \left(\frac{3}{2}\right)^{-x} = \frac{13}{6} \quad | \cdot \left(\frac{3}{2}\right)^x$$

$$\left(\frac{3}{2}\right)^{2x} + 1 = \frac{13}{6} \cdot \left(\frac{3}{2}\right)^x$$

$$\left(\frac{3}{2}\right)^x = t$$

$$t^2 - \frac{13}{6}t + 1 = 0$$

$$t = \frac{3}{2}, \frac{2}{3} \Rightarrow x = \pm 1 \quad :)$$