

$$25^{x-1} = 125^{4x}$$

Solved like this:

$$25^{x-1} = 125^{4x}$$

$$(5^2)^{x-1} = (5^3)^{4x}$$

$$5^{2x-2} = 5^{12x}$$

$$2x - 2 = 12x$$

the Key Step

$$\begin{array}{r} 2x - 2 = 12x \\ -2x \quad \quad -2x \\ \hline -2 = 10x \end{array}$$

$$\frac{-2}{10} = \frac{10x}{10}$$

$$x = -\frac{1}{5}$$