

$$x = 1.0(01)$$

$$10x = 10 \cdot 1.0(01) =$$

$$= 10.(01) =$$

$$= 10 + 0.(01) =$$

$$= 10 + y$$

$$x = \frac{10+y}{10} = 1 + \frac{y}{10}$$

$$y = 0.(01)$$

$$10^2 y = 10^2 \cdot 0.(01) =$$

$$= 1.(01) =$$

$$= 1 + 0.(01) =$$

$$= 1 + y$$

$$10^2 y - y = 1 \quad ; \quad 10^2 y - y = (10^2 - 1)y = 99y$$

$$99y = 1$$

$$y = \frac{1}{99}$$

$$x = 1 + \frac{y}{10} = 1 + \frac{1}{99} \cdot \frac{1}{10} = 1 + \frac{1}{99 \cdot 10} = 1 + \frac{1}{990}$$

$$x = 1.0(01) = 1 + \frac{1}{990}$$