

November 26th

$$9^x = 3^y$$

$$(4^x)^y = 256^{\frac{1}{2}}$$

From the first equation

$$2x = y \quad (1)$$

From the second equation

$$xy = 2 \quad (2) \quad (\text{since } \sqrt{256} = 16)$$

Substituting (1) into (2)

Gives

$$2x^2 = 2$$

$$x = \pm 1$$

$$y = \pm 2$$