
Problem of the Week

Solution Two

Let $x = 10^{10}$. For what value of y will 10^y equal the tenth root of 10^x ?

SOLUTION: We find that $y = 10^9$.

We want 10^y to be the tenth root of 10^x . Therefore,

$$10^y = (10^x)^{1/10} = (10)^{x/10}.$$

This implies that

$$y = \frac{x}{10}.$$

But since $x = 10^{10}$, we find that

$$y = \frac{x}{10} = \frac{10^{10}}{10} = 10^9,$$

as claimed.