

2026-10-04

Lawpsmian $a^{\frac{m}{n}}$

$$\textcircled{1} \quad \frac{2^{\frac{a}{3}} \cdot 4^{\frac{15}{a}}}{0,5^{\frac{a+1}{2}}} =$$

$$\frac{2^{\frac{a}{3}} \cdot (2^2)^{\frac{15}{a}}}{(2^{-1})^{\frac{a+1}{2}}} =$$

$$= 2^{\frac{a}{3} + 2 \cdot \frac{15}{a} - (-1) \cdot \frac{a+1}{2}}$$

$$\frac{a^{(2a)}}{3} + \frac{30^{(3 \cdot 2)}}{a} + \frac{a+1^{(3a)}}{2} = \frac{2a^2}{6a} + \frac{180}{6a} + \frac{3a^2+3a}{6a} =$$

$$= \frac{5a^2+3a+180}{6a} =: k$$

$$\boxed{2^k}$$

$$\textcircled{2} \quad \frac{3^{\frac{2026a}{b}} + 3^{\frac{2026a+b}{b}}}{4} =$$

$$= \frac{3^{\frac{2026a}{b}} \cdot 1 + 3^{\frac{2026a}{b}} \cdot 3}{4} =$$

$\frac{2026a+b}{b} = \frac{2026a}{b} + \frac{b}{b} = \frac{2026a}{b} + 1$

(bracket over $3^{\frac{2026a}{b}}$ with arrow pointing to "same")

$$= \frac{3^{\frac{2026a}{b}} \cdot (1+3)}{4} = 3^{\frac{2026a}{b}}$$

(crossed out 4)

Raskite visas galimas natūraliąsias a, b, c reikšmes, kad

$$\textcircled{3} \quad 3^{\frac{a}{b}} \cdot 15^{\frac{c}{2b}} = \underline{135}$$

$$3^{\frac{N}{N}} \cdot 15^{\frac{N}{2 \cdot N}} \rightarrow 135 = 3^3 \cdot 5$$

$$\begin{aligned} 3^{\frac{a}{b}} \cdot 15^{\frac{c}{2b}} &= 3^{\frac{a}{b}} \cdot (3 \cdot 5)^{\frac{c}{2b}} = 3^{\frac{a}{b}} \cdot 3^{\frac{c}{2b}} \cdot 5^{\frac{c}{2b}} \\ &= 3^{\frac{a}{b} + \frac{c}{2b}} \cdot 5^{\frac{c}{2b}} = 3^3 \cdot 5^1 \end{aligned}$$

$$\frac{\frac{a+c}{b}}{\frac{c}{2b}} = \frac{2a+c}{2b} = 3 \rightarrow \frac{2a+c}{c} = \frac{2a}{c} + 1 = 3$$

$$\frac{c}{2b} = 1 \rightarrow c = 2b$$

$$\frac{2a}{c} = 2$$

$$2a = 2c$$

$$a = c$$

$$a = c = 2b$$

su bet kokia $b \in \mathbb{N}$.