

Lektionen Mathematik vom 1.12.2021

Potenzgleichungen: Beispiele

$$17(2x-5)^{\frac{5}{3}} - 4'444 = 9'999 \quad + 4'444$$

$$17(2x-5)^{\frac{5}{3}} = 14'443 \quad :17$$

$$(2x-5)^{\frac{5}{3}} = \frac{14'443}{17}$$

$$(x^3)^5 = x^{15} \quad (x^n)^m = x^{n \cdot m}$$

$$\left((2x-5)^{\frac{5}{3}} \right)^{\frac{3}{5}} = \left(\frac{14'443}{17} \right)^{\frac{3}{5}}$$

$$2x-5 = \left(\frac{14'443}{17} \right)^{\frac{3}{5}} \quad +5$$

$$2x = \left(\frac{14'443}{17} \right)^{\frac{3}{5}} + 5$$

$$x = \frac{\left(\frac{14'443}{17} \right)^{\frac{3}{5}} + 5}{2}$$

$$12x^4 = 0.75 \quad :12$$

$$x^4 = \frac{0.75}{12}$$

$$(x^4)^{\frac{1}{4}} = \pm \left(\frac{0.75}{12} \right)^{\frac{1}{4}}$$

$$x = \pm \left(\frac{0.75}{12} \right)^{\frac{1}{4}}$$

$$\frac{1}{3}(5x-7)^{-4} = \frac{1}{243} \quad \cdot 3$$

$$(5x-7)^{-4} = \frac{3}{243} = \frac{1}{81}$$

$$\left((5x-7)^{-4}\right)^{-\frac{1}{4}} = \pm \left(\frac{1}{81}\right)^{-\frac{1}{4}}$$

$$5x-7 = \pm \left(\frac{1}{81}\right)^{-\frac{1}{4}} + 7$$

$$5x = 7 \pm \left(\frac{1}{81}\right)^{-\frac{1}{4}} :5$$

$$x = \frac{7 \pm \left(\frac{1}{81}\right)^{-\frac{1}{4}}}{5}$$
