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2HDB, 11.4.2018:

Potenzgleichungen

1.

$$12x^4 = 0.75$$

$$12x^4 = \frac{3}{4} \quad | : 12$$

$$x^4 = \frac{3}{48} = \frac{1}{16} \quad | \sqrt[4]{\quad}$$

$$\underline{\underline{x = \pm \frac{1}{2}}}$$

2.

$$\frac{25}{2}x^{-5} = 4.096 \left(= \frac{512}{125} \right) \quad | \cdot 2 : 25$$

$$x^{-5} = \frac{2}{25} \cdot 4.096 \quad | -15$$

$$(x^{-5})^{-15} = \left(\frac{8.192}{25} \right)^{-15}$$

$$\underline{\underline{x = 1.25 = \frac{5}{4}}}$$

3.

$$\frac{1}{18}(x-7)^6 = 2'592 \quad | \cdot 18$$

$$(x-7)^6 = 46'656 \quad | \sqrt[6]{\quad}$$

$$x-7 = \pm 6$$

$$x_{1,2} = 7 \pm 6$$

$$\underline{\underline{x_1 = 13}}$$

$$\underline{\underline{x_2 = 1}}$$

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4.

$$21x^{-2/7} = 11 \quad | : 21$$

$$x^{-2/7} = \frac{11}{21} \quad |^{-7/2}$$

$$\left(x^{-2/7}\right)^{-7/2} = \left(\frac{11}{21}\right)^{-7/2}$$

$$\underline{\underline{x \approx 9.614}} \quad (9.613756\dots)$$