

EXPONENCIÁLNÍ ROVNICE

Řešte v \mathcal{R} :

6.1.P.1 : $2^x = 64$
 6.1.P.2 : $10^x = 0,0001$
 6.1.P.3 : $2^{-x} = \frac{1}{8}$
 6.1.P.4 : $25^x = \left(\frac{1}{5}\right)^{-3}$
 6.1.P.5 : $4^{3x-2} = 256$
 6.1.P.6 : $0,125^{x-1} = 128$
 6.1.P.7 : $0,2^{x+1} = 25$
 6.1.P.8 : $9^x = \left(\frac{1}{3}\right)^{x^2}$
 6.1.P.9 : $81^{-x} = 27$
 6.1.P.10 : $10^x = \sqrt[3]{10^2}$

$K = \{6\}$
 $K = \{-4\}$
 $K = \{3\}$
 $K = \left\{\frac{3}{2}\right\}$
 $K = \{2\}$
 $K = \left\{-\frac{4}{3}\right\}$
 $K = \{-1\}$
 $K = \{0; -2\}$
 $K = \left\{-\frac{3}{4}\right\}$
 $K = \left\{\frac{2}{3}\right\}$

Řešte v \mathcal{R} :

6.2.P.1 : $\left(\frac{1}{5}\right)^x = \frac{1}{125}$
 6.2.P.2 : $\left(\frac{3}{7}\right)^{x+1} = \left(\frac{49}{9}\right)$
 6.2.P.3 : $\left(\frac{2}{3}\right)^{2x+1} = \frac{27}{8}$
 6.2.P.4 : $\left(\frac{5}{2}\right)^{x-1} = \left(\frac{8}{125}\right)^{x+1}$
 6.2.P.5 : $\left(\frac{3}{5}\right)^x = \left(1\frac{2}{3}\right)^3$
 6.2.P.6 : $\left(\frac{1}{4}\right)^{2x+3} = \left(\frac{1}{8}\right)^{x+2}$
 6.2.P.7 : $\left(\frac{1}{4}\right)^{\frac{3x^2-1}{2}} = \left(\frac{1}{8}\right)^{\frac{x^2+1}{3}}$
 6.2.P.8 : $\frac{1}{3^x} = \frac{1}{9}$
 6.2.P.9 : $\left(\frac{5}{8}\right)^{\frac{2x+1}{x-1}} = \left(\frac{512}{125}\right)^{3-x}$
 6.2.P.10 : $\left(1 - \frac{1}{3}\right)^{x+1} = \frac{9}{4}$

$K = \{3\}$
 $K = \{-3\}$
 $K = \{-2\}$
 $K = \left\{\frac{1}{2}\right\}$
 $K = \{-3\}$
 $K = \{0\}$
 $K = \{\pm 1\}$
 $K = \{2\}$
 $K = \left\{\frac{2}{3}; 4\right\}; D: \boxed{x \neq 1}$
 $K = \{-3\}$

Řešte v \mathcal{R} :

6.3.P.1 : $5^{2x+1} = \sqrt{25^x}$
 6.3.P.2 : $3^{1-x} = \sqrt[3]{27^x}$
 6.3.P.3 : $\sqrt{4^{x-1}} = \sqrt[3]{2^{1+x}}$
 6.3.P.4 : $x + \sqrt{2^x} = 8$
 6.3.P.5 : $x + \sqrt[3]{27} = x + \sqrt{9}$
 6.3.P.6 : $2^{x+\sqrt{x^3-x}} = 1024$
 6.3.P.7 : $2^{x+\sqrt{48+x}} = \sqrt[6]{128}$

$K = \{-1\}$
 $K = \left\{\frac{1}{2}\right\}$
 $K = \{2\}$
 $K = \emptyset; D: \boxed{x+2 \in \mathcal{Z}^+}$
 $K = \{1\}; D: \boxed{x+2 \in \mathcal{Z}^+ \wedge x+1 \in \mathcal{Z}^+}$
 $K = \emptyset; D: \boxed{2x+3 \in \mathcal{Z}^+}$
 $K = \{34\}; D: \boxed{2x+4 \in \mathcal{Z}^+}$

Řešte v \mathcal{R} :

6.5.P.1 : $3^{x-1} = 1$
 6.5.P.2 : $2^{x+3} = 1$
 6.5.P.3 : $5^{x^2-x} = 1$
 6.5.P.4 : $4x^3-4x = 1$
 6.5.P.5 : $7x^2-5x+6 = 1$

$K = \{1\}$
 $K = \{-3\}$
 $K = \{0; 1\}$
 $K = \{0; \pm 2\}$
 $K = \{2; 3\}$

Řešte v \mathcal{R} :

6.6.P.1 : $2^{6x} \cdot \left(\frac{1}{2}\right)^{9+x} = 2^{3x-5}$
 6.6.P.2 : $4 \cdot 2^{x^2} = 2^{3x}$
 6.6.P.3 : $32^{x-1} \cdot \left(\frac{1}{8}\right)^{3x-2} = 1$
 6.6.P.4 : $16^{3x-2} = 2 \cdot 8^x$
 6.6.P.5 : $275^{x-6} \cdot 81^{2x+3} = 9^{4x-2} \cdot 3^{7x-2}$
 6.6.P.6 : $\frac{10^{x^2}}{2^{-15}} = \frac{5^{-15}}{10^{12-12x}}$
 6.6.P.7 : $\frac{2^{x-3} \cdot 3^{x-2}}{8^{x-4} \cdot 8^{x-1}} = \frac{9^{x-2}}{3}$
 6.6.P.8 : $\left(\frac{7}{3}\right)^{1-3x} \cdot \frac{9}{49} = \left(\frac{49}{9}\right)^{1-2x}$
 6.6.P.9 : $\left(\frac{3}{2}\right)^{2x-1} \cdot \left(\frac{8}{27}\right)^{x+3} = \frac{16}{81}$
 6.6.P.10 : $\frac{64}{25} \cdot \left(\frac{8}{5}\right)^{\frac{3}{x-1}} = \left(\frac{125}{512}\right)^{3-x}$

$K = \{2\}$
 $K = \{1; 2\}$
 $K = \left\{\frac{1}{4}\right\}$
 $K = \{1\}$
 $K = \{0\}$
 $K = \{3; 9\}$
 $K = \{-1\}$
 $K = \{3\}$
 $K = \{-6\}$
 $K = \left\{\frac{2}{3}; 4\right\}; D: \boxed{x \neq 1}$

Řešte v \mathcal{R} :

6.11.P.1 : $2^{x+2} - 2^x = 96$
 6.11.P.2 : $3^x + 3^{x+2} = \frac{10}{3}$
 6.11.P.3 : $3^{x-2} + 3^{x-1} = 36$
 6.11.P.4 : $3 \cdot 2^x - 20 = 2^{x-1}$
 6.11.P.5 : $5^x + 3 \cdot 5^{x-2} = 140$
 6.11.P.6 : $7^{x+2} + 2 \cdot 7^{x-1} = 345$
 6.11.P.7 : $3^x + 3^{x+1} - 3^{x-1} = \frac{11}{9}$
 6.11.P.8 : $3^{x-1} + 3^{x-2} + 3^{x-3} = 13$
 6.11.P.9 : $4 \cdot 3^{x+1} - 3^{x+2} = 72 + 3^{x-1}$
 6.11.P.10 : $4 \cdot 3^{5x-1} + 3^{5x+2} - \frac{5}{2} = 3^{5x+1}$
 6.11.P.11 : $3^x + 3^{x+1} + 3^{x+2} + 3^{x+3} = 40$
 6.11.P.12 : $3^x + 2 = 3^{x+2}$

$K = \{5\}$
 $K = \{-1\}$
 $K = \{4\}$
 $K = \{3\}$
 $K = \{3\}$
 $K = \{1\}$
 $K = \{-1\}$
 $K = \{3\}$
 $K = \{3\}$
 $K = \{3\}$
 $K = \left\{-\frac{1}{5}\right\}$
 $K = \{0\}$
 $K = \left\{\frac{\log \frac{1}{3}}{\log 3} = -1, 2619\right\}$

Řešte v \mathcal{R} :

6.13.P.1 : $4^x - 9 \cdot 2^x + 8 = 0$
 6.13.P.2 : $3^{x+1} + 9^x - 108 = 0$
 6.13.P.3 : $16^{2x} + 16 = 2^{4x+3}$
 6.13.P.4 : $3^{x+2} + 9^{x+1} - 810 = 0$
 6.13.P.5 : $3^{2x-1} + 3 \cdot 3^x - 12 = 0$
 6.13.P.6 : $2^{2x+1} - 33 \cdot 2^{x-1} + 4 = 0$
 6.13.P.7 : $\frac{8}{3} \cdot 3^{x-1} + 1 = 9^{x-1}$
 6.13.P.8 : $16^{x-1} + 4 \cdot (4^x - 384) = 0$
 6.13.P.9 : $3^x \cdot (19 - 3^x) = 90$

$K = \{0; 3\}$
 $K = \{2\}$
 $K = \left\{\frac{1}{2}\right\}$
 $K = \{2\}$
 $K = \{1\}$
 $K = \{3; -2\}$
 $K = \{2\}$
 $K = \left\{\frac{7}{2}\right\}$
 $K = \{2, 0959; 2\}$