# Feladatok a másodfokú egyenletek témakörből

Törtes egyenletek

1. $\frac{x+1}{x-1}+\frac{x+5}{x-2}=10$ $x\_{1}=3, x\_{2}=\frac{9}{8}$
2. $\frac{x}{x+1}-\frac{12}{x+7}+1=0$ $x\_{1}=1, x\_{2}=-\frac{5}{2}$
3. $\frac{x+2}{x-3}=2-\frac{7}{x+1}$ $x\_{1}=1, x\_{2}=13$
4. $\frac{x}{2}-\frac{6x-5}{x-1}-\frac{x-3}{2x-2}=0$ $x=13$
5. $\frac{1}{2x+1}-\frac{x-4}{2x-1}+\frac{4}{3}=0$ $x\_{1}=-\frac{1}{5}, x\_{2}=-\frac{5}{2}$
6. $0=\frac{x}{4-x}+\frac{1}{x-4}-\frac{2}{x^{2}-8x+16}$ $x\_{1}=2, x\_{2}=3$
7. $\frac{x+1}{1-3x}+\frac{3-x}{3x-1}=\frac{2}{2+x}$ $x\_{1}=-2-\sqrt{7} ≈-4,646 , x\_{2}=-2+\sqrt{7}≈0,6458$
8. $\frac{1}{x^{2}-3x}=\frac{3-2x}{3-x}+\frac{3}{x}$ $x\_{1}=\sqrt{5}, x\_{2}=-\sqrt{5}, $
9. $\frac{1}{x^{2}-x}-\frac{1-2x}{x^{2}-1}+\frac{3}{x^{2}+x}=0$ $x\_{1}=-2, x\_{2}=\frac{1}{2}$
10. $\frac{1}{4x^{2}-2x}-\frac{3-2x}{4x^{2}-1}=-\frac{3}{4x^{2}+2x}$ $x=-1$

Magasabb fokú egyenletek

1. $x^{6}+19x^{3}-216=0$ $x\_{1}=2, x\_{2}=-3$
2. $x^{4}-13x^{2}+36=0$ $x\_{1}=2, x\_{2}=-2, x\_{3}=3, x\_{4}=-3 $
3. $8x^{6}+9x^{3}+1=0$ $x\_{1}=-1, x\_{2}=-\frac{1}{2}$
4. $x^{8}-80x^{4}-81=0$ $x\_{1}=-3, x\_{2}=3$
5. $3x^{12}+10x^{6}+2=0$ $nincs megoldás$
6. $2x^{4}-13x^{2}+6=0$ $x\_{1}=\sqrt{6}, x\_{2}=-\sqrt{6}, x\_{3}=\sqrt{\frac{1}{2}}, x\_{4}=-\sqrt{\frac{1}{2}}$
7. $2x^{10}-3x^{5}-9=0$ $x\_{1}=\sqrt[5]{3}, x\_{2}=-\sqrt[5]{\frac{3}{2}}$

Irracionális (gyökös) egyenletek

1. $\sqrt{16x}-5=4-\sqrt{25x}$ $x=1$
2. $\sqrt{x}=x-20$ $x=25, hamis gyök:16$
3. $3\sqrt{x+1}=x+1$ $x\_{1}=8, x\_{2}=-1$
4. $\sqrt{x+5}=3x-9$ $x=4, hamis gyök: \frac{19}{9}$
5. $\sqrt{x+8}=4-7x$ $x=\frac{8}{49}, hamis gyök:1$
6. $2\sqrt{x-5}=3x+10$ $nincs valós megoldás$
7. $\sqrt{x+5}+15=x$ $ x=20, hamis gyök:11$
8. $\sqrt{30-x}+10=x$ $ x=14, hamis gyök:5$
9. $5\sqrt{x+1}+9-3x=0$ $x=8, hamis gyök: \frac{7}{9}$
10. $7\sqrt{x+4}+5x=4$ $x=-\frac{36}{25}, hamis gyök:5$

Egyenletrendszerek!

1. $\left\{\begin{array}{c}x+y=12\\xy=35\end{array}\right.$ $\begin{matrix}x\_{1}=5, y\_{1}=7\\x\_{2}=7, y\_{2}=5\end{matrix}$
2. $\left\{\begin{array}{c}x+3y=50\\xy=75\end{array}\right.$ $\begin{matrix}x\_{1}=45, y\_{1}=\frac{5}{3}\\x\_{2}=5, y\_{2}=15\end{matrix}$
3. $\left\{\begin{array}{c}2x+3y=37\\xy=22\end{array}\right.$ $\begin{matrix}x\_{1}=\frac{33}{2}, y\_{1}=\frac{4}{3}\\x\_{2}=2, y\_{2}=11\end{matrix}$
4. $\left\{\begin{array}{c}-x+5y=15\\xy+x+y=29\end{array}\right.$ $\begin{matrix}x\_{1}=-26, y\_{1}=-\frac{11}{5}\\x\_{2}=5, y\_{2}=4\end{matrix}$
5. $\left\{\begin{array}{c}x^{2}+5y=11\\2x+3y-5=0\end{array}\right.$ $\begin{matrix}x\_{1}=-\frac{2}{3}, y\_{1}=\frac{19}{9}\\x\_{2}=4, y\_{2}=-1\end{matrix}$
6. $\left\{\begin{array}{c}3x^{2}-2y^{2}=5x+4y+12\\4x+5y-12=0\end{array}\right.$ $\begin{matrix}x\_{1}=-\frac{276}{43}, y\_{1}=\frac{324}{43}\\x\_{2}=3, y\_{2}=0\end{matrix}$
7. $\left\{\begin{array}{c}\frac{3x+5y}{4}=x-y+1\\x^{2}+7xy+x+y=3\end{array}\right.$ $\begin{matrix}x\_{1}=-\frac{23}{8}, y\_{1}=\frac{1}{8}\\x\_{2}=\frac{1}{2}, y\_{2}=\frac{1}{2}\end{matrix}$