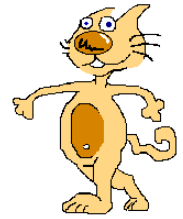


Kubische Gleichungen - Übungsaufgaben 2

Lösen durch Ausklammern.



$f(x) = x^3 - x^2$ Nullstellen: $x^3 - x^2 = 0$	$g(x) = x^3 + x^2$ Nullstellen: $x^3 + x^2 = 0$
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$h(x) = x^3 - x^2 - 12x$ Nullstellen: $x^3 - x^2 - 12x = 0$	$i(x) = 2x^3 + 12x^2 + 10x$ Nullstellen: $2x^3 + 12x^2 + 10x = 0$
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$j(x) = x^3 - 15x^2 + 50x$ Nullstellen: $x^3 - 15x^2 + 50x = 0$	$k(x) = 7,5x^3 - 52,5x^2$ Nullstellen: $7,5x^3 - 52,5x^2 = 0$
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Kubische Gleichungen - Übungsaufgaben 2



$f(x) = x^3 - x^2$ Nullstellen: $x^3 - x^2 = 0$ $x^2 (x - 1) = 0$ $x_1 = 0$ $x - 1 = 0 \quad +1$ $x_2 = 1 \qquad \qquad \qquad L = \{0; 1\}$	$g(x) = x^3 + x^2$ Nullstellen: $x^3 + x^2 = 0$ $x^2 (x + 1) = 0$ $x_1 = 0$ $x + 1 = 0 \quad -1$ $x_2 = -1 \qquad \qquad \qquad L = \{-1; 0\}$
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$h(x) = x^3 - x^2 - 12x$ Nullstellen: $x^3 - x^2 - 12x = 0$ $x (x^2 - x - 12) = 0$ $x_1 = 0$ $x^2 - x - 12 = 0 \quad \text{ p,q-Formel}$ $x_{2,3} = 0,5 \pm \sqrt{0,25 + 12}$ $x_2 = 0,5 + 3,5 = 4$ $x_3 = 0,5 - 3,5 = -3$ $L = \{-3; 0; 4\}$	$i(x) = 2x^3 + 12x^2 + 10x$ Nullstellen: $2x^3 + 12x^2 + 10x = 0$ $2x (x^2 + 6x + 5) = 0$ $2x = 0 \qquad x_1 = 0$ $x^2 + 6x + 5 = 0 \quad \text{ p,q-Formel}$ $x_{2,3} = -3 \pm \sqrt{9 - 5}$ $x_2 = -3 + 2 = -1$ $x_3 = -3 - 2 = -5$ $L = \{-5; -1; 0\}$
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$j(x) = x^3 - 15x^2 + 50x$ Nullstellen: $x^3 - 15x^2 + 50x = 0$ $x (x^2 - 15x + 50) = 0$ $x_1 = 0$ $x^2 - 15x + 50 = 0 \quad \text{ p,q-Formel}$ $x_{2,3} = 7,5 \pm \sqrt{56,25 - 50}$ $x_2 = 7,5 + 2,5 = 10$ $x_3 = 7,5 - 2,5 = 5$ $L = \{0; 5; 10\}$	$k(x) = 7,5x^3 - 52,5x^2$ Nullstellen: $7,5x^3 - 52,5x^2 = 0$ $7,5x^2 (x - 7) = 0$ $7,5x^2 = 0$ $x_1 = 0$ $x - 7 = 0 \quad +7$ $x_2 = 7$ $L = \{0; 7\}$
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