

Trigonometrische Gleichungen

Dokumentnummer: DX1756
 Fachgebiet: Trigonometrie, Gleichungen
 Einsatz: 3HAK (zweites Lernjahr)



1 Aufgabe

(%i17) `g:sin(x)=sqrt(2)/2;`

(%o17) $\sin(x) = \frac{1}{\sqrt{2}}$

2 Lösung

2.1 Mit solve()

(%i18) `l1:solve(g,x);`

solve: using arc-trig functions to get a solution.
 Some solutions will be lost.

(%o18) $[x = \frac{\pi}{4}]$

2.2 Mit to_poly_solve()

(%i19) `l2:to_poly_solve(g,x);`

(%o19) $\%union\left([x = 2\pi \%z17 + \frac{\pi}{4}], [x = 2\pi \%z18 + \frac{3\pi}{4}]\right)$

`%z#` steht für eine ganze Zahl

(%i20) `g,x=2*%pi+%pi/4;`

(%o20) $\frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$

(%i21) `makelist(ev(g,x=2*%pi*i+%pi/4),i,-5,5);`

(%o21) $\left[\frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}\right]$

(%i22) `g,x=2*%pi+3*%pi/4;`

(%o22) $\frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$