2cosx-sin2x=2+2sinx
2cosx(1-sinx)=2(1+sinx)
cosx(1-sinx)-(1+sinx)=0
cosx-sinx-sinx*cosx-1=0
cosx-sinx=t
-sinxcosx=(t^2-1)/2
t+(t^2-1)/2-1=0
t^2+2t-3=0
t1,2=-3,1
cosx-sinx=1
sinx-cosx=-1
V2(sinx V2/2 + cosx -V2/2)=V2sin(x-P/4)
V2sin(x-P/4)=-1
sin(x-P/4)=-V2/2
x=+P/4-P/4+2Pk=2Pk
x=+P/4+5P/4+2Pk=3P/2+2Pk

V2sin(x-P/4)=3
sin(x-P/4)=3V2/2 -- больше единицы

4tg^2 x + ctg^2 x + 6tgx - 3 ctgx - 8=0

подсказка замена 2tgx-ctgx=t

4tg^2 x + ctg^2 x = t^2+4
t^2+3t-4=0
t1,2=-4,1
2tgx-ctgx=1
tgx=t
2t-1/t=1
2t^2-t-1=0
D=1+8=9
t=(1+3)/4=1
t=(1-3)/4=-½
tgx=1
x=P/4+Pk
tgx=-½
x=arctg-½ + Pk

2tgx-ctgx=-4
2t^2+4t-1=0
D/4=4+2=6
t1,2=(-2+-V6)/2
tgx=(-2+-V6)/2
x=arctg(-2+V6)/2+Pk
x=arctg(-2-V6)/2+Pk