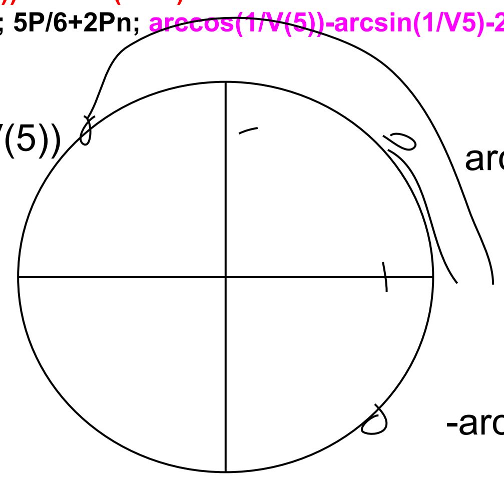
4sinx + 2cosx = 2+ 3tgx

4sinx-2tgx=tgx-2cosx+2
4sinx-2sinx/cosx=sinx/cosx-2cosx+2
(4sinx*cosx-2sinx)/cosx=(sinx-2cos^2 x)/cosx+2
(2(2sinx*cosx-sinx))/cosx=(sinx-2cos^2x+2cosx)/cosx
cosx!=0
2(2sinx*cosx-sinx)=sinx-2cos^2 x+2cosx
4sinx*cosx-2sinx-sinx+2cos^2x-2cosx=0
4sinx*cosx-3sinx+2cos^2x-2cosx=0
4sinx*cosx-3sinx+2(1-sin^2x)-2cosx
4sinx*cosx-3sinx+2-2sin^2x-2cosx=0=0
2sinx(2cosx-sinx)-3sinx-2cosx+2=0
2sinx(2cosx-sinx)-3sinx-sinx+sinx-2cosx+2=0
2sinx(2cosx-sinx)-4sinx-(2cosx-sinx)+2=0
(2cosx-sinx)(2sinx-1)-4sinx+2=0
(2cosx-sinx)(2sinx-1)-2(2sinx-1)=0
(2sinx-1)(2cosx-sinx-2)=0
2sinx-1=0
2cosx-sinx-2=0
2sinx-1=0
2sinx=1
sinx=0.5=½
x1=P/6+2Pn
x2=5P/6+2Pn

cosx!=0
x!=P/2+Pn

I СПОСОБ
2cosx-sinx-2=0
2*cosx-1*sinx=V(2^2+1^2)(cosx*2/V(5)-sinx*1/V(5))=
=
siny=2/V(5)
cosy=1/V(5)
y=arccos(1/V(5))
V(5)(cosx*siny-sinx*cosy)=V(5)*sin(y-x)
2*V5*sin(arccos(1/V(5))-x)=2
V5*sin(arccos(1/V(5))-x)=1
sin(arccos(1/V(5))-x)=1/V5
arccos(1/V(5))-x=arcsin(1/V5)+2Pn
x=arccos(1/V(5))-arcsin(1/V5)-2Pn
arccos(1/V(5))-x=P-arcsin(1/V5)+2Pn
x=arccos(1/V(5))+arcsin(1/V5)-P-2Pn
Ответ:**P/6+2Pn; 5P/6+2Pn; arccos(1/V(5))-arcsin(1/V5)-2Pn; arccos(1/V(5))+arcsin(1/V5)-P-2Pn**



II СПОСОБ
2cosx-sinx-2=0
2*(1-2sin^2 x/2)-2*sinx/2*cosx/2-2=0
2-4sin^2 x/2-2sinx/2*cosx/2-2=0
-4sin^2 x/2-2sin(x/2)*cos(x/2)=0
2sin^2 x/2+sin(x/2)*cos(x/2)=0
sin(x/2)(2sin(x/2)-cos(x/2))=0
sin(x/2)=0
x/2=Pn
x=2Pn
2sin(x/2)-cos(x/2)=0

Можно так
2sin(x/2)-cos(x/2)=V(5)*(sin(x/2)*2/V(5)-cos(x/2)*1/V(5))
siny=1/V(5)
cosy=2/V(5)
[1/V(5)]^2 + [2/V(5)]^2=1

y=arcsin(1/V(5))
V(5)(sin(x/2)*cosy-cos(x/2)*siny)=V(5)*sin(x/2-y)
V5*sin(x/2-arcsin(1/V(5)))=0
sin(x/2-arcsin(1/V(5)))=0
x/2-arcsin(1/V(5))=Pn
x/2=Pn+arcsin(1/V(5))
x=2*(Pn+arcsin(1/V(5)))

Или так
2sin(x/2)-cos(x/2)=0
2sin(x/2=cos(x/2)
2tg(x/2)=1
tg(x/2)=½
x/2=arctg(½)+Pn
x=2*(arctg(½)+Pn)