любое триг ур-ие можно свести к ур-ию высших степеней

tg x =y

sin^2 x=sin^2x/(sin^2x+cos^2x)=sin^2x / cos^2x(sin^2x/cos^2x+1)=

= sin^2x/cos^2 x / cos^2x(sin^2x/cos^2x+1)/cos^2 x =

=tg^2x/(tg^2x+1)=y^2 / (y^2+1)

cos^2 x=cos^2x/(sin^2x+cos^2x)=cos^2x/cos^2x(sin^2x/cos^2x+1)=

=1/(sin^2x/cos^2x+1)=1/(tg^2x+1)=1/ (y^2+1)

sin2x = sin2x/(sin^2x+cos^2x)=2*sinx*cosx/(sin^2x+cos^2x)=

=2*sinx*cosx/cos^2x(sin^2x/cos^2x+1)=2sinx/cosx / (sin^2x/cos^2x+1)=

=2tgx/(tg^2x+1)=2y / (y^2+1)

cos2x= cos2x/(sin^2x+cos^2x)=(cos^2x-sin^2x)/(sin^2x+cos^2x)=

=cos^2x(1-sinx^2/cos^2x)/cos^2x(sin^2x/cos^2x+1)=(1-tg^2x)/(1+tg^2x)=

=(1-y^2)/ (y^2+1)

tg2x=sin2x/cos2x=2tgx/(tg^2x+1) / (1-tg^2x)/(1+tg^2x)=

2tgx/(1-tg^2x)=2y / (1-y^2)

tg3x=tg(x+2x)=(tgx+tg2x)/(1-tgx*tg2x)=(tgx+2tgx/(1-tg^2x))/

(1-tgx*2tgx/(1-tg^2x))=([tgx(1-tg^2x)+2tgx]/(1-tg^2x))/(1-2tg^2x/(1-tg^2x))

=([3tgx-tg^3x]/(1-tg^2x))/(1-2tg^2x/(1-tg^2x))=

=(3tgx-tg^3x)/(1-tg^2x-2tg^2x)=(3tgx-tg^3x)/(1-3tg^2x)=(3y-y^3)/(1-3y^2)

A/B / C/B = A/C

tg(a+b)=sin(a+b)/cos(a+b)=(sina*cosb+sinb*cosa)/(cosa*cosb-sina*sinb)

=cosa*cosb(sina/cosa+sinb/cosb)/cosa*cosb(1-sina*sinb/cosa*cosb)=

=(sina/cosa+sinb/cosb)/(1-sina*sinb/cosa*cosb)=(tga+tgb)/(1-tga*tgb)

3tg3x - ctg2x = 4tgx

3(3y-y^3)/(1-3y^2)-1/2y / (1-y^2)=4y

(9y-3y^3)/(1-3y^2)-(1-y^2)/2y -4y=0

[2y(9y-3y^3)-(1-3y^2)(1-y^2)-4y*2y(1-3y^2)]/2y(1-3y^2) =0

[18y^2-6y^4-1+y^2+3y^2-3y^4-8y^2+24y^4]/2y(1-3y^2) =0

[14y^2-1+15y^4]/2y(1-3y^2) =0

14y^2-1+15y^4=0

a=y^2

15a^2+14a-1=0

D/4=49+15=64

a1=(-7+8)/15=1/15

a2=(-7-8)/15=-1

y^2=1/15

y=+-1/V15

tgx=+-1/V15

x=+-arctg(1/V15)+Pk

2y(1-3y^2)!=0

y!=0

1-3y^2!=0

3y^2!=1

y!=+-1/V3

Answer: +-arctg(1/V15)+Pk