$(1-3\sin^2 x) / \sin^2 x = 5 \operatorname{ctg} x$

$(1-3\sin^2 x)/\sin^2 x = 5\cos x/\sin x$

$1/\sin^2 x \quad - \quad 3\sin^2 x/\sin^2 x = 5\cos x/\sin x$

$1/\sin^2 x - 3 = 5\cos x/\sin x$

$1+\operatorname{ctg}^2 x - 3 = 5\operatorname{ctg} x$

$\operatorname{ctg}^2 x - 5\operatorname{ctg} x - 2 = 0$

$\operatorname{ctg} x = t$

$t^2 - 5t - 2 = 0$

$D = 33$

$t = (5 +- \sqrt{33})/2$

$\operatorname{ctg} x = (5+\sqrt{33})/2$

$x = \operatorname{arcctg}((5+\sqrt{33})/2) + Pn$

$\operatorname{ctg} x = (5-\sqrt{33})/2$

$x = \operatorname{arcctg}((5-\sqrt{33})/2) + Pn$

Ответ: $\operatorname{arcctg}((5+\sqrt{33})/2) + Pn$; $\operatorname{arcctg}((5-\sqrt{33})/2) + Pn$