

$$|\operatorname{ctg} x| \geq 1/\sqrt{3}$$

$$\sin^2 x - \sqrt{2}/2 \sin x < 0$$

$$(\cos x + \sqrt{3}/2)(\cos x + \sqrt{3}) > 0$$

$$\operatorname{ctg} x - 4/\operatorname{ctg} x + 3 \geq 0$$