

Sistemi di disequazioni goniometriche

risolvere i seguenti sistemi di disequazioni goniometriche

1	$\begin{cases} 2 \sin x + 1 > 0 \\ \sin x < 1 \end{cases}$	$\begin{aligned} -\frac{5}{6}\pi + 2k\pi < x < -\frac{\pi}{6} + 2k\pi \vee \\ -\frac{\pi}{6} + 2k\pi < x < \frac{\pi}{2} + 2k\pi \vee \\ \frac{\pi}{2} + 2k\pi < x < \frac{7}{6}\pi + 2k\pi \end{aligned}$
2	$\begin{cases} (2 \sin x - 2)(\tan x + \sqrt{3}) > 0 \\ \cos x \sin x < 0 \end{cases}$	$-\frac{\pi}{2} + k\pi < x < -\frac{\pi}{3} + k\pi$
3	$\begin{cases} 2 \sin x - 1 - \sin x < 0 \\ \sin x > 0 \end{cases}$	$\begin{aligned} 2k\pi < x < \frac{\pi}{2} + 2k\pi \vee \\ \frac{\pi}{2} + 2k\pi < x < \pi + 2k\pi \end{aligned}$
4	$\begin{cases} \sin 2x > 0 \\ 1 - \sqrt{1 - \cos x} \geq 0 \end{cases}$	$2k\pi < x < \frac{\pi}{2} + 2k\pi$
5	$\begin{cases} \cos^2 x - \frac{1}{4} > 0 \\ \sqrt{3}(2 \sin x - \sqrt{2}) > 0 \end{cases}$	$\begin{aligned} \frac{\pi}{4} + 2k\pi < x < \frac{\pi}{3} + 2k\pi \vee \\ \frac{2}{3}\pi + 2k\pi < x < \frac{3}{2}\pi + 2k\pi \end{aligned}$
6	$\begin{cases} \tan x \geq \frac{\sqrt{3}}{3} \\ \sin x < -\frac{\sqrt{3}}{2} \end{cases}$	$2k\pi - \frac{2}{3}\pi < x < -\frac{\pi}{2} + 2k\pi$
7	$\begin{cases} 2 \sin^2 x > 1 \\ \cos^2 x > 0 \end{cases}$	$-\frac{3}{2}\pi + k\pi < x < -\frac{\pi}{2} + k\pi$
8	$\begin{cases} \sin x \cos x \leq 1 \\ \cos^2 x \geq \sin^2 x \end{cases}$	$\begin{aligned} x = \pi + 2k\pi \\ -\pi + 2k\pi < x \leq -\frac{3}{4}\pi + 2k\pi \vee \\ -\frac{\pi}{4} + 2k\pi \leq x \leq \frac{\pi}{4} + 2k\pi \vee \\ \frac{3}{4}\pi + 2k\pi \leq x < \pi + 2k\pi \end{aligned}$
9	$\begin{cases} \sqrt{3} \frac{\sin x}{\cos x} > 1 \\ 2 \sin x > \sqrt{3} \end{cases}$	$\frac{\pi}{3} + 2k\pi < x < \frac{\pi}{2} + 2k\pi$
10	$\begin{cases} \tan^2 x - \frac{\sin x}{\cos x} > 0 \\ 3 \sin x > \sqrt{3} \cos x \end{cases}$	$\begin{aligned} \frac{\pi}{4} + 2k\pi < x < \frac{\pi}{2} + 2k\pi \vee \\ \frac{\pi}{2} + 2k\pi < x < \pi + 2k\pi \end{aligned}$
11	$\begin{cases} \tan x + \sin x < 0 \\ \cos x + \sin^2 x > 1 \end{cases}$	$-\frac{\pi}{2} + 2k\pi < x < 2k\pi$
12	$\begin{cases} \sin 2x < 0 \\ \cot x + \frac{\sqrt{3}}{2} < 1 \end{cases}$	$-\frac{\pi}{2} + k\pi < x < k\pi$
13	$\begin{cases} \tan x - \cos x + \sin x > 1 \\ \cos^2 x > 0 \end{cases}$	$\begin{aligned} \frac{\pi}{6} + 2k\pi < x < \frac{\pi}{2} + 2k\pi \\ \frac{\pi}{4} + 2k\pi < x < \frac{6}{2}\pi + 2k\pi \end{aligned}$
14	$\begin{cases} 2 - \cos^2 x + \sin^2 x > \frac{1}{2} \\ \sin x \cot x > 0 \end{cases}$	$-\frac{\pi}{2} + 2k\pi < x < \frac{\pi}{2} + 2k\pi$

15	$\begin{cases} \cos x > \frac{1}{2} \\ \sin x < \frac{1}{2} \end{cases}$	$-\frac{\pi}{3} + 2\kappa\pi < x < \frac{\pi}{6} + 2\kappa\pi$
16	$\begin{cases} \cot \frac{\cos x}{\sin x} < 1 \\ \tan x < \frac{\pi}{4} \end{cases}$	$-\frac{\pi}{2} + \kappa\pi < x < -\frac{\pi}{4} + \kappa\pi$
17	$\begin{cases} \tan x + \cos^2 x + \sin^2 x < 1 \\ \cos x - \frac{\sqrt{2}}{2} < 1 \end{cases}$	$-\frac{\pi}{2} + \kappa\pi < x < \frac{6}{2}\pi + 2\kappa\pi$
18	$\begin{cases} \cos x(2 \sin^2(x-1)) < 0 \\ \cot^2 x - 3 \geq 0 \\ 2 \sin x - 1 \geq 0 \end{cases}$	$0 < x \leq \frac{\pi}{6} \vee \frac{5}{6}\pi \leq x < \pi \vee$ $\pi < x \leq \frac{7}{6}\pi \vee \frac{11}{6}\pi \leq x < 2\pi$
19	$\begin{cases} \sin^2(x-1) \leq 0 \\ 2 \cos x + 1 \geq 0 \end{cases}$	$-\frac{\pi}{4} + 2\kappa\pi \leq x \leq \frac{\pi}{4} + 2\kappa\pi$
20	$\begin{cases} \tan^2 x - 3 \geq 0 \\ 2 \cos^2 x - 1 \geq 0 \end{cases}$	<i>impossibile</i>
21	$\begin{cases} 3 \tan^2 x - 1 \leq 0 \\ 3 \cot^2 x - 1 \geq 0 \end{cases}$	$-\frac{\pi}{6} + \kappa\pi \leq x \leq \frac{\pi}{6} + \kappa\pi; \quad x \neq \kappa\pi$