Sistemi di disequazioni goniometriche

indice

Gli esercizi sono proposti in ordine di difficoltà crescente.

nota: in un file così lungo e complesso può accadere che sia presente un errore di diversa natura nonostante gli esercizi siano stati controllati più volte. Saremo grati di ricevere segnalazioni di eventuali refusi o suggerimenti di qualsiasi natura.

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1. risolvere i seguenti sistemi di disequazioni goniometriche di primo grado

1	$\begin{cases} cosx \leq 1 \\ sinx < 0 \end{cases}$	$\pi + 2k\pi < x \leq 2\pi + 2k\pi$
2	$\begin{cases} sinx > \frac{1}{2} \\ cosx \leq 0 \end{cases}$	$\frac{\pi}{2} + 2k\pi \leq x < \frac{5}{6}\pi + 2k\pi$
3	$\begin{cases} cosx > \frac{\sqrt{3}}{2} \\ sinx \geq 0 \end{cases}$	$2k\pi \leq x < \frac{\pi}{6} + 2k\pi$
4	$\begin{cases} \sin x > 0 \\ \cos x < \frac{\sqrt{3}}{2} \end{cases}$	$\frac{\pi}{6} + 2k\pi < x < \pi + 2k\pi$
5	$\begin{cases} \sin x < 1 \\ \sin x > 0 \end{cases}$	$2k\pi < x < \frac{\pi}{2} + 2k\pi \vee \frac{\pi}{2} + 2k\pi < x < \pi + 2k\pi$
6	$\begin{cases} \cos x > \frac{1}{2} \\ \sin x < \frac{1}{2} \end{cases}$	$-\frac{\pi}{3} + 2k\pi < x < \frac{\pi}{6} + 2k\pi$
7	$\begin{cases} \cos x \leq -\frac{1}{2} \\ \sin x \leq 0 \end{cases}$	$\pi + 2k\pi \leq x \leq \frac{4}{3}\pi + 2k\pi$
8	$\begin{cases} \cos x > 0 \\ \sin x > -\frac{\sqrt{2}}{2} \end{cases}$	$2k\pi \leq x < \frac{\pi}{2} + 2k\pi \vee \frac{7}{4}\pi + 2k\pi < x \leq 2\pi + 2k\pi$

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9	$\begin{cases} \cos x < 1 \\ \sin x \leq \frac{1}{2} \end{cases}$	$2k\pi < x \leq \frac{\pi}{6} + 2k\pi \ \vee$ $\frac{5}{6}\pi + 2k\pi \leq x < 2\pi + 2k\pi$
10	$\begin{cases} \cos x \geq \frac{\sqrt{3}}{2} \\ \sin x \leq 0 \end{cases}$	$x = 2k\pi \ \vee$ $\frac{11}{6}\pi + 2k\pi \leq x \leq 2\pi + 2k\pi$
11	$\begin{cases} \sin x \geq -\frac{\sqrt{3}}{2} \\ \cos x > -\frac{1}{2} \end{cases}$	$2k\pi \leq x < \frac{2}{3}\pi + 2k\pi \ \vee$ $\frac{5}{3}\pi + 2k\pi \leq x \leq 2\pi + 2k\pi$
12	$\begin{cases} 2\cos x - \sqrt{2} \leq 0 \\ 1 - 2\sin x \geq 0 \end{cases}$	$\frac{5}{6}\pi + 2k\pi \leq x \leq \frac{7}{4}\pi + 2k\pi$
13	$\begin{cases} 2\sin x > \sqrt{2} \\ 2\cos x < \sqrt{2} \end{cases}$	$\frac{\pi}{4} + 2k\pi < x < \frac{3}{4}\pi + 2k\pi$
14	$\begin{cases} 2\sin x - 1 < 0 \\ \cos x < \frac{\sqrt{2}}{2} 0 \end{cases}$	$\frac{5}{6}\pi + 2k\pi < x < \frac{7}{4} + 2k\pi$
15	$\begin{cases} 2\sin x - \sqrt{2} \leq 0 \\ 2\cos x + 1 > 0 \end{cases}$	$-\frac{2}{3}\pi + 2k\pi < x \leq \frac{\pi}{4} + 2k\pi$
16	$\begin{cases} 2\sin x < 1 \\ 2\cos x \leq \sqrt{3} \end{cases}$	$\frac{5}{6}\pi + 2k\pi < x \leq \frac{11}{6} + 2k\pi$

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17	$\begin{cases} sinx - \frac{\sqrt{2}}{2} \leq 0 \\ cosx \leq 0 \end{cases}$	$\frac{3}{4}\pi + 2k\pi \leq x \leq \frac{3}{2} + 2k\pi$
18	$\begin{cases} sinx < -\frac{\sqrt{2}}{2} \\ tanx < 0 \end{cases}$	$\frac{3}{2}\pi + 2k\pi < x < \frac{7}{4} + 2k\pi$
19	$\begin{cases} sinx < \frac{\sqrt{3}}{2} \\ cotx > 0 \end{cases}$	$2k\pi < x < \frac{\pi}{6} + 2k\pi \ \vee$ $\pi + 2k\pi < x < \frac{3}{2}\pi + 2k\pi$
20	$\begin{cases} \tan x \geq -1 \\ \cot x \geq 1 \end{cases}$	$k\pi < x \leq \frac{\pi}{4} + k\pi$
21	$\begin{cases} cosx > -\frac{1}{2} \\ tanx < 0 \end{cases}$	$\frac{\pi}{2} + 2k\pi < x < \frac{2}{3}\pi + 2k\pi \ \vee$ $\frac{2}{3}\pi + 2k\pi < x < 2\pi + 2k\pi$
22	$\begin{cases} \tan x < -\sqrt{3} \\ \tan x > \frac{1}{\sqrt{3}} \end{cases}$	$\emptyset$
23	$\begin{cases} cosx < \frac{\sqrt{6} - \sqrt{2}}{4} \\ cotx < 0 \end{cases}$	$\frac{\pi}{2} + 2k\pi < x < \pi + 2k\pi \vee$ $\frac{3}{2}\pi + 2k\pi < x < \frac{19}{12}\pi + 2k\pi$
24	$\begin{cases} tanx \geq \sqrt{3} \\ sinx > \frac{1}{2} \end{cases}$	$\frac{\pi}{3} + 2k\pi \leq x < \frac{\pi}{2} + 2k\pi$

25	$\begin{cases} tanx > -1 \\ cosx \leq \frac{1}{2} \end{cases}$	$\frac{\pi}{3} + 2k\pi \leq x < \frac{\pi}{2} + 2k\pi \ \vee$ $\frac{3}{4}\pi + 2k\pi < x < \frac{3}{2}\pi + 2k\pi$
26	$\begin{cases} cotx < -\sqrt{3} \\ sinx > 0 \end{cases}$	$\frac{5}{6}\pi + 2k\pi < x < \pi + 2k\pi$
27	$\begin{cases} cotx < \sqrt{5 + 2\sqrt{5}} \\ sinx > \frac{\sqrt{5} - 1}{4} \end{cases}$	$\frac{\pi}{10} + 2k\pi < x < \frac{9}{10}\pi + 2k\pi$
28	$\begin{cases} \sin 2x > 0 \\ 1 - \sqrt{1 - cos\, x} \geq 0 \end{cases}$	$2k\pi < x < \frac{\pi}{2} + 2k\pi$
29	$\begin{cases} tan\frac{x}{2} > \sqrt{3} \\ sin\left(x + \frac{\pi}{4}\right) > 0 \end{cases}$	$\frac{2}{3}\pi + 2k\pi < x < \frac{3}{4}\pi + 2k\pi$
30	$\begin{cases} tan\, x \geq \frac{\sqrt{3}}{3} \\ sin\, x < -\frac{\sqrt{3}}{2} \end{cases}$	$2k\pi - \frac{2}{3}\pi < x < -\frac{\pi}{2} + 2k\pi$
31	$\begin{cases} \sin 2x < 0 \\ cot\, x + \frac{\sqrt{3}}{2} < 1 \end{cases}$	$-\frac{\pi}{2} + k\pi < x < k\pi$

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32	$\begin{cases} \frac{\sqrt{2}}{2} - \cos x \geq 0 \\ \sin x - \frac{1}{2} \geq 0 \end{cases}$	$\frac{1}{4}\pi + 2k\pi \leq x \leq \frac{5}{6}\pi + 2k\pi$
33	$\begin{cases} 3\tan x > \sqrt{3} \\ 2\sin x + 1 < 0 \end{cases}$	$\frac{7}{6}\pi + 2k\pi < x < \frac{3}{2}\pi + 2k\pi$
34	$\begin{cases} \tan x \geq \sqrt{3} \\ 2\sin x \geq 1 \end{cases}$	$\frac{\pi}{3} + 2k\pi \leq x < \frac{\pi}{2} + 2k\pi$
35	$\begin{cases} \tan\frac{x}{2} > \sqrt{3} \\ \tan\frac{x}{2} < -1 \end{cases}$	$\emptyset$
36	$\begin{cases} \tan x < -\frac{1}{\sqrt{3}} \\ \cos 2x \geq 0 \end{cases}$	$\frac{3}{4}\pi + k\pi \leq x < \frac{5}{6}\pi + k\pi$
37	$\begin{cases} 2\sin\left(x - \frac{\pi}{3}\right) \leq -2 \\ \cos\left(x - \frac{\pi}{3}\right) \geq -\frac{1}{2} \end{cases}$	$x = \frac{11}{6}\pi + 2k\pi$
38	$\begin{cases} 2\cos x \geq \sqrt{3} \\ 2\cos 2x - 1 \leq 0 \end{cases}$	$x = \frac{\pi}{6} + 2k\pi \ \vee$ $x = \frac{11}{6}\pi + 2k\pi$
39	$\begin{cases} \sqrt{3}\cot\frac{x}{2} \geq 3 \\ \sin x + 3 > 2(\sin x + 2) \end{cases}$	$\emptyset$

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40	$\begin{cases} 2\sin 2x - \sqrt{3} < 0 \\ \sin\left(x - \frac{\pi}{3}\right) \geq 0 \end{cases}$	$\frac{\pi}{3} + 2k\pi < x < \frac{7}{6}\pi + 2k\pi$
41	$\begin{cases} \sin x + \sqrt{3} > 3\sin x \\ 2\sin x + 2\cos x > 0 \end{cases}$	$-\frac{\pi}{4} + 2k\pi < x < \frac{\pi}{3} + 2k\pi \vee$ $\frac{2}{3}\pi + 2k\pi < x < \frac{3}{4}\pi + 2k\pi$
42	$\begin{cases} 4\sin x - 4 < 0 \\ \cos x + \sin x > 0 \end{cases}$	$-\frac{\pi}{4} + 2k\pi < x < \frac{\pi}{2} + 2k\pi \vee$ $\frac{\pi}{2} + 2k\pi < x < \frac{3}{4}\pi + 2k\pi$
43	$\begin{cases} \sin x - \sqrt{3}\cos x \leq 0 \\ \cos x(2\sin x + 1) \geq 0 \end{cases}$	$-\frac{\pi}{6} + 2k\pi \leq x \leq \frac{\pi}{3} + 2k\pi \vee$ $\frac{4}{3}\pi + 2k\pi \leq x \leq \frac{3}{2}\pi + 2k\pi$

2. risolvere i seguenti sistemi di disequazioni goniometriche di grado superiore al primo

44	$\begin{cases} \cos x - \frac{1}{2} \geq 0 \\ \sin^2 x - \frac{1}{2} \leq 0 \end{cases}$	$-\frac{\pi}{4} + 2k\pi \leq x \leq \frac{\pi}{4} + 2k\pi$
45	$\begin{cases} \sin 2x > \cos x \\ \cos 2x + (\cos x - 1)^2 > \cos^2 x \end{cases}$	$\frac{5}{6}\pi + 2k\pi < x < \frac{3}{2}\pi + 2k\pi$
46	$\begin{cases} \cos^2 x - \frac{1}{4} > 0 \\ \sqrt{3}(2\sin x - \sqrt{2}) > 0 \end{cases}$	$\frac{\pi}{4} + 2k\pi < x < \frac{\pi}{3} + 2k\pi \vee$ $\frac{2}{3}\pi + 2k\pi < x < \frac{3}{4}\pi + 2k\pi$
47	$\begin{cases} \frac{1}{2} - \cos^2 x \leq 0 \\ 3 - \tan^2 x \leq 0 \end{cases}$	$\emptyset$

48	$\begin{cases}\left(\sin x-\frac{1}{2}\right)\left(\sin x+\frac{1}{2}\right)>0\\ \frac{3}{4}-\cos^2 x>0\end{cases}$	$\frac{\pi}{6}+k\pi<x<\frac{5}{6}\pi+k\pi$
49	$\begin{cases}\tan x+\sin x<0\\ \cos x+\sin^2 x>1\end{cases}$	$-\frac{\pi}{2}+2k\pi<x<2k\pi$
50	$\begin{cases}\tan x-\cos x+\sin x>1\\ \cos^2 x>0\end{cases}$	$\frac{\pi}{4}+2k\pi<x<\frac{\pi}{2}+2k\pi$
51	$\begin{cases}2-\cos^2 x+\sin^2 x>\frac{1}{2}\\ \sin x\cot x>0\end{cases}$	$-\frac{\pi}{2}+2k\pi<x<\frac{\pi}{2}+2k\pi$
52	$\begin{cases}3\tan^2 x-1\leq 0\\ 3\cot an^2 x-1\geq 0\end{cases}$	$-\frac{\pi}{6}+k\pi\leq x\leq\frac{\pi}{6}+k\pi;\ \ x\neq k\pi$
53	$\begin{cases}\tan x+\cos^2 x+\sin^2 x<1\\ \cos x-\frac{\sqrt{2}}{2}<1\end{cases}$	$-\frac{\pi}{2}+k\pi<x<k\pi$
54	$\begin{cases}\cot^2 x-3\geq 0\\ 2\sin x-1\geq 0\end{cases}$	$x=\frac{5}{6}\pi+2k\pi\ \vee$ $x=\frac{\pi}{6}+2k\pi$
55	$\begin{cases}2\sin^2 x\leq 1\\ 2\cos x+1\geq 0\end{cases}$	$-\frac{\pi}{4}+2k\pi\leq x\leq\frac{\pi}{4}+2k\pi$

56	$\begin{cases} tan^2 x - 3 \geq 0 \\ 2cos^2 x - 1 \geq 0 \end{cases}$	*impossibile*
57	$\begin{cases} tan^3(2x) \geq 1 \\ sin\, x\, cos\, x > 0 \end{cases}$	$-\frac{7}{8}\pi + k\pi \leq x < -\frac{3}{4}\pi + k\pi$
58	$\begin{cases} 1 + sin^2\left(x + \frac{\pi}{3}\right) > 0 \\ 1 - cot^2\left(\frac{\pi}{6} - x\right) > 0 \end{cases}$	$-\frac{7}{12}\pi + k\pi < x < -\frac{\pi}{12} + k\pi$
59	$\begin{cases} 2 - 2\, cos^2 x < 1 \\ cos\, 2x > 0 \end{cases}$	$-\frac{\pi}{4} + 2k\pi < x < \frac{\pi}{4} + 2k\pi$
60	$\begin{cases} sin^3 x + cos^2 x < 1 \\ tan\, x > 1 \end{cases}$	$-\frac{3}{4} + k\pi < x < -\frac{\pi}{2} + k\pi$
61	$\begin{cases} 1 - cot^2 x < 1 \\ sin\, x\, tan\, x > 0 \end{cases}$	$-\frac{\pi}{2} + 2k\pi < x < 2k\pi \vee$ $2k\pi < x < \frac{\pi}{2} + 2k\pi$
62	$\begin{cases} 2sin^2 x - sinx - 1 \leq 0 \\ \sqrt{3}cot^2 x - 3cotx \leq 0 \end{cases}$	$\frac{\pi}{6} + 2k\pi \leq x \leq \frac{\pi}{2} + 2k\pi \vee$ $x = \frac{7}{6}\pi + 2k\pi$

63	$\begin{cases} tan^2 x - 1 \geq 0 \\ \sqrt{3 + 2sinx} \geq 0 \end{cases}$	$\frac{\pi}{4} + \kappa\pi \leq x \leq \frac{3}{4}\pi + \kappa\pi \wedge x \neq \frac{\pi}{2} + k\pi$
64	$\begin{cases} cos^2 x - 3\cos x + 2 < 0 \\ \left(\sin x - \frac{\sqrt{2}}{2}\right)\left(\sin x + \frac{\sqrt{2}}{2}\right) > 0 \end{cases}$	$\emptyset$
65	$\begin{cases} 4\sin^2 x - 1 > 0 \\ 2\cos^2 x < \frac{3}{2} \end{cases}$	$\frac{\pi}{6} + k\pi < x < \frac{5}{6}\pi + k\pi$
66	$\begin{cases} 2\sin^2 x - \cos x - 1 > 0 \\ \cos 2x + 3\sin x \geq 2 \end{cases}$	$\frac{\pi}{3} + 2k\pi < x \leq \frac{5}{6}\pi + 2k\pi$
67	$\begin{cases} 4\sqrt{3}\tan x - 3 - 3tan^2 x < 0 \\ 6\tan x - 9 + (\tan x - 3)^2 < 0 \end{cases}$	$\emptyset$
68	$\begin{cases} \left(cot\, x - \frac{1}{\sqrt{3}}\right)\left(cot\, x + \frac{1}{\sqrt{3}}\right) \geq 0 \\ \frac{1}{3} - tan^2 x \geq 0 \end{cases}$	$-\frac{\pi}{6} + k\pi \leq x \leq \frac{\pi}{6} + k\pi \wedge x \neq k\pi$
69	$\begin{cases} tan^2 x - \tan x < 0 \\ 1 - tan^2 x \geq 0 \end{cases}$	$k\pi \leq x < \frac{\pi}{4} + k\pi$

70	$\begin{cases} 2\cos^2 x + 3\cos x - 2 > 0 \\ 3\cos x + \sin^2 x - 3 > 0 \end{cases}$	$\emptyset$
71	$\begin{cases} 2\sin^2 x > 1 \\ \cos^2 x > 0 \end{cases}$	$\frac{\pi}{4} + k\pi < x < \frac{\pi}{2} + k\pi \ \vee$ $\frac{\pi}{2} + k\pi < x < \frac{3}{4}\pi + k\pi$
72	$\begin{cases} \sin x \cos x \leq 1 \\ \cos^2 x \geq \sin^2 x \end{cases}$	$x = \pi + 2k\pi \ \vee$ $-\pi + 2k\pi < x \leq -\frac{3}{4}\pi + 2k\pi \ \vee$ $-\frac{\pi}{4} + 2k\pi \leq x \leq \frac{\pi}{4} + 2k\pi \ \vee$ $\frac{3}{4}\pi + 2k\pi \leq x < \pi + 2k\pi$
73	$\begin{cases} \sin 2x > \sin x \\ \cos 2x \leq \cos x \end{cases}$	$2k\pi < x < \frac{\pi}{3} + 2k\pi \ \vee$ $\frac{4\pi}{3} + 2k\pi < x < \frac{5\pi}{3} + 2k\pi$

3. risolvere i seguenti sistemi con tre disequazioni goniometriche

74	$\begin{cases} \sin x - \cos x > 0 \\ \tan\frac{x}{2} + 2\cos x < 2 \\ \sqrt{3}\sin x - \cos x > 0 \end{cases}$	$\frac{\pi}{4} + 2k\pi < x < \frac{5}{6}\pi + 2k\pi$
75	$\begin{cases} \cot^2 x - 3 \leq 0 \\ 2\cos^2 x - 1 \leq 0 \\ \sin^2 x + 2\sin x + 1 \leq 0 \end{cases}$	$x = \frac{3}{2}\pi + 2k\pi$

76	$\begin{cases} sin^2x + sinx \geq 0 \\ 1 - 2cos^2x \geq 0 \\ 4sin^2x - 3 \geq 0 \end{cases}$	$\frac{\pi}{3} + 2k\pi \leq x \leq \frac{2}{3}\pi + 2k\pi \ \vee$ $x = \frac{3}{2}\pi + 2k\pi$
77	$\begin{cases} 2sin^2x - sinx \geq 0 \\ 2cosx - 1 \geq \\ (1 - sin^2x) + cosx \geq 0 \end{cases}$	$\frac{\pi}{6} + 2k\pi \leq x \leq \frac{\pi}{3} + 2k\pi \ \vee$ $\frac{5}{3}\pi + 2k\pi \leq x \leq 2\pi + 2k\pi$
78	$\begin{cases} \sqrt{1 - cos\,x + 1} > 0 \\ \sqrt{3}\,sin\,x - sin\,2x > 0 \\ \left\lvert tan\frac{x}{2} \right\rvert < 1 \end{cases}$	$\frac{\pi}{6} + 2k\pi < x < \frac{\pi}{2} + 2k\pi \ \vee$ $\frac{11}{6}\pi + 2k\pi < x < 2\pi + 2k\pi$
79	$\begin{cases} 2\,cos^2\frac{x}{2} < 1 - 2\,cos\,x \\ \sqrt{\sqrt{3} - 2\,cos\,x} \geq 0 \\ sin^2\,x + \frac{5}{2}cos\,x - 2 > 0 \end{cases}$	$\emptyset$
80	$\begin{cases} tan\left(x + \frac{\pi}{4}\right) - 1 > sin\,2x \\ 2\sqrt{cos\left(\frac{3}{2}\pi + x\right)} < \sqrt{2} \\ \sqrt{1 + 2\,cos\,x} > 1 - cos\,x \end{cases}$	$2k\pi < x < \frac{\pi}{6} + 2k\pi$
81	$\begin{cases} 2\,sin^2\frac{x}{2} < 1 - sin\,x \\ \left\lvert \frac{tan\,2x}{cot\,x} \right\rvert < 1 \\ 3\,cos\,x + sin^2\,x - 3 > 0 \end{cases}$	$\emptyset$

4. esercizi con funzioni goniometriche inverse

82	$\begin{cases} arcsin\, x < \frac{\pi}{4} \\ arccos\, x \geq \frac{\pi}{3} \end{cases}$	$-1 \leq x \leq \frac{1}{2}$
83	$\begin{cases} arccos\, x + \pi > 0 \\ 2\, arccos\, x - \pi > 0 \end{cases}$	$-1 \leq x < 0$
84	$\begin{cases} arcsin\, x > -\frac{\pi}{4} \\ arccos\, x \leq \frac{\pi}{4} \end{cases}$	$\frac{\sqrt{2}}{2} \leq x \leq 1$
85	$\begin{cases} arccos\, x + \pi < 0 \\ 2\, arccos\, x - \pi > 0 \end{cases}$	$\emptyset$
86	$\begin{cases} 2\, arctan\, x + \pi \geq 0 \\ 16\, arctan^2\, x - \pi^2 \geq 0 \end{cases}$	$x \leq -1 \vee x \geq 1$
87	$\begin{cases} \lvert 4\, arcsin\, x \rvert < \pi \\ 4\, arctan\, x - \pi \geq 0 \end{cases}$	$\emptyset$

5. esercizi di riepilogo più impegnativi

88	$\begin{cases} (2\, sin\, x - 2)(tan\, x + \sqrt{3}) > 0 \\ cos\, x\, sin\, x < 0 \end{cases}$	$-\frac{\pi}{2} + k\pi < x < -\frac{\pi}{3} + k\pi$

89	$\begin{cases}(\sin x-1)(\sin x+1)\le 0\\ \sin x\,(\sin x-1)\ge 0\end{cases}$	$x=\frac{\pi}{2}+2k\pi \ \vee$ $\pi+2k\pi\le x\le 2\pi+2k\pi$
90	$\begin{cases}1+\sin x\,(2\sin x-3)\ge 0\\ \sin x\,(2\sin x-1)<0\end{cases}$	$2k\pi<x<\frac{\pi}{6}+2k\pi \ \vee$ $\frac{5}{6}\pi+2k\pi<x<\pi+2k\pi$
91	$\begin{cases}\tan x-\sqrt{3}<0\\ \sin x(2\sin x+1)-1>0\end{cases}$	$\frac{\pi}{6}+2k\pi<x<\frac{\pi}{3}+2k\pi \ \vee$ $\frac{\pi}{2}+2k\pi<x<\frac{5}{6}\pi+2k\pi$
92	$\begin{cases}2\sin x+\sqrt{2}\le 0\\ 2\tan x(\cos^{-1}x)<0\end{cases}$	$\frac{5}{4}\pi+2k\pi\le x\le\frac{7}{4}\pi+2k\pi\ \wedge$ $x\ne\frac{3}{2}\pi+2k\pi$
93	$\begin{cases}\tan x+1>0\\ \dfrac{\cos x}{\sin x-\frac{\sqrt{2}}{2}}\ge 0\end{cases}$	$\frac{\pi}{4}+2k\pi<x<\frac{\pi}{2}+2k\pi \ \vee$ $\frac{3}{4}\pi+2k\pi<x<\frac{3}{2}\pi+2k\pi$
94	$\begin{cases}(\tan^2 x-1)(\tan^2 x+1)\le 0\\ \sin x-\cos x\ge 0\end{cases}$	$x=\frac{\pi}{4}+2k\pi \ \vee$ $\frac{3}{4}\pi+2k\pi\le x\le\frac{5}{4}\pi+2k\pi$
95	$\begin{cases}\sin^2 x-3\sin x+2\ge 0\\ 5(1-\cos x)-\sin^2 x\le 0\end{cases}$	$x=2k\pi$
96	$\begin{cases}\dfrac{\sqrt{3}\sin x}{\cos x}>1\\ 2\sin x>\sqrt{3}\end{cases}$	$\frac{\pi}{3}+2k\pi<x<\frac{\pi}{2}+2k\pi$

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97	$\begin{cases} tan^2 x - \dfrac{sin\, x}{cos\, x} > 0 \\ 3\, sin\, x > \sqrt{3}\, cos\, x \end{cases}$	$\frac{\pi}{4} + 2k\pi < x < \frac{\pi}{2} + 2k\pi \vee \frac{\pi}{2} + 2k\pi < x < \pi + 2k\pi$
98	$\begin{cases} cotx\ \dfrac{cos\, x}{sin\, x} < 1 \\ tan\, x < \dfrac{\pi}{4} \end{cases}$	$-\frac{\pi}{2} + k\pi < x < -\frac{\pi}{4} + k\pi$
99	$\begin{cases} 2\, cos^2 \dfrac{x}{2} + cos\, x - 2 \leq 0 \\ sin\, x + cos\, x < 0 \end{cases}$	$\frac{3}{4}\pi + 2k\pi < x \leq \frac{5}{3}\pi + 2k\pi$
100	$\begin{cases} sin^2 \dfrac{x}{2} + cos\, x - 1 \leq 0 \\ sin^2 \dfrac{x}{2} + cos\, x - 1 \geq 0 \end{cases}$	$x = 2k\pi$
101	$\begin{cases} 2(1 - sin\, x)(1 + sin\, x) > 2 - 3\, cos\, x \\ \dfrac{sin\, x - cos\, x}{cos\, x\, tan\, x + cos\, x} < 0 \end{cases}$	$-\frac{\pi}{4} + 2k\pi < x < \frac{\pi}{4} + 2k\pi$
102	$\begin{cases} 3\, sin^2 x + 2\sqrt{3}\, sin\, x\, cos\, x \leq 3\, cos^2 x \\ \sqrt{3}\, cos^2 x - sin^2 x - (\sqrt{3} - 1)\, sin\, x\, cos\, x > \end{cases}$	$-\frac{\pi}{3} + k\pi < x \leq \frac{\pi}{6} + k\pi$
103	$\begin{cases} \lvert sin\, x \rvert < \sqrt{2} + 1 \\ sin\left(2x - \dfrac{\pi}{4}\right) > cos\left(2x - \dfrac{\pi}{4}\right) \end{cases}$	$\frac{\pi}{4} + k\pi < x < \frac{3}{4}\pi + k\pi$
104	$\begin{cases} sin^2 x - cos^2 x > 0 \\ sin^4 x - cos^4 x < 0 \end{cases}$	$\emptyset$

105	$\begin{cases} \dfrac{\sin 3x + \sin x}{2\sin^2 x \cos x} \geq 0 \\ 2(\cos x + \sin x)(\cos x - \sin x) + 1 \geq 0 \end{cases}$	$k\pi < x \leq \dfrac{\pi}{3} + k\pi$
106	$\begin{cases} \sin 2x \geq -\sin x \\ \dfrac{1 - \sin x - \sqrt{3}\cos x}{\cos x} \geq 0 \end{cases}$	$\emptyset$
107	$\begin{cases} 2\lvert\sin x\rvert - \sqrt{3} < 0 \\ \cot x \leq \sqrt{3} \end{cases}$	$\dfrac{\pi}{6} + k\pi < x \leq \dfrac{\pi}{3} + k\pi$
108	$\begin{cases} \sqrt{2}\sin x > \sin\left(x + \dfrac{\pi}{4}\right) \\ \dfrac{\lvert\sin x\rvert - 1}{\tan\dfrac{x}{2}} > 0 \end{cases}$	$\pi + 2k\pi < x < \dfrac{5}{4}\pi + 2k\pi$
109	$\begin{cases} \sqrt{3}\cos x + \lvert\sin x\rvert < 1 \\ 2 - \sin^2 x > 0 \end{cases}$	$-\pi + 2\kappa\pi < x < -\dfrac{\pi}{2} + 2\kappa\pi \vee$ $x = \pi + 2\kappa\pi \vee$ $\dfrac{\pi}{2} + 2\kappa\pi < x < \pi + 2\kappa\pi$
110	$\begin{cases} \lvert 2\sin x + 1\rvert > 0 \\ \sin x < 1 \end{cases}$	$-\frac{5}{6}\pi + 2\kappa\pi < x < -\frac{\pi}{6} + 2\kappa\pi \vee$ $-\frac{\pi}{6} + 2\kappa\pi < x < \frac{\pi}{2} + 2\kappa\pi \vee$ $\dfrac{\pi}{2} + 2\kappa\pi < x < \dfrac{7}{6}\pi + 2\kappa\pi$
111	$\begin{cases} \lvert\cos x - \sin x\rvert - \sqrt{2} < 0 \\ \dfrac{\left(\cos x + \sqrt{3}\right)^2 - 2\sqrt{3}\cos x}{\cos 2x + 2} - \dfrac{\cos 2x}{3 - \cos^2 x} - \dfrac{5}{6} \end{cases}$	$x \neq \dfrac{3}{4}\pi + k\pi$

112	$\begin{cases} \dfrac{\sqrt{3}\sin x - \cos x + \cos^2 x}{\sin x} \leq 0 \\ -\sqrt{\dfrac{\sin 2x}{\cos^2 x}} \leq 0 \end{cases}$	$\pi + 2k\pi < x \leq \dfrac{5\pi}{4} + 2k\pi$
113	$\begin{cases} 2(\sin x)^{\frac{1}{2}} < \sqrt{2} \\ \tan\left(\dfrac{\pi}{4} + x\right) > 2\sin x \cos x + 1 \end{cases}$	$2k\pi < x < \dfrac{\pi}{6} + 2k\pi \ \vee$ $2k\pi + \dfrac{5\pi}{6} < x < \pi + 2k\pi$
114	$\begin{cases} \tan 2x < 1 \\ \dfrac{\sin x\,(2 - \cos x)}{\tan x} \leq 1 \end{cases}$	$-\dfrac{\pi}{4} + k\dfrac{\pi}{2} < x < \dfrac{\pi}{8} + k\dfrac{\pi}{2} \wedge$ $x \neq k\dfrac{\pi}{2}$
115	$\begin{cases} \csc 2x < \dfrac{\sqrt{2}}{2} \\ \cot\dfrac{x}{2}(1 + \cos x) - \sin x < 0 \end{cases}$	$\dfrac{\pi}{2} + k\pi < x < \pi + k\pi$
116	$\begin{cases} \sqrt{5 - 2\sin x} \geq 6\sin x - 1 \\ \sin^3 x + \cos^3 x > 0 \end{cases}$	$-\dfrac{\pi}{4} + 2k\pi < x < \dfrac{3}{4}\pi + 2k\pi$
117	$\begin{cases} (\cos x - \sin x)\tan x \geq 0 \\ \left\lvert\dfrac{\cos 2x}{\sin x}\right\rvert \leq 1 \end{cases}$	$\dfrac{\pi}{6} + 2k\pi \leq x \leq \dfrac{\pi}{4} + 2k\pi \ \vee$ $\dfrac{\pi}{2} + 2k\pi < x \leq \dfrac{5}{6}\pi + 2k\pi \ \vee$ $\dfrac{5}{4}\pi + 2k\pi \leq x < \dfrac{3}{2}\pi + 2k\pi$

118	$\begin{cases} cos\, x + \sqrt{3}\, sin\, x - \sqrt{3} > 0 \\ \sqrt{3}\, cos\left(x - \frac{\pi}{6}\right) - sin\left(x - \frac{\pi}{6}\right) > 0 \end{cases}$	$\frac{\pi}{6} + 2k\pi < x < \frac{\pi}{2} + 2k\pi$