



algebra e ... goniometria

Individua per ciascuna riga (numero) un titolo (es: disequazione di secondo grado con discriminante negativo, disequazione fratta...); ripassa la teoria relativa agli argomenti di algebra che non ricordi ed evidenzia eventuali difficoltà o fonti d'errore.

1) $x - \sqrt{6}x + 1 \leq 0$	$\cos x - \sqrt{6} \cos x + 1 \leq 0$	$\sin x - \sqrt{6} \sin x + 1 \leq 0$	$\tan x - \sqrt{6} \tan x + 1 \leq 0$	$\tan\left(x + \frac{\pi}{4}\right) - \sqrt{6} \tan\left(x + \frac{\pi}{4}\right) + 1 \leq 0$
2) $4x^2 - 3 > 0$	$4\cos^2 x - 3 > 0$	$4\sin^2 x - 3 > 0$	$4\tan^2 x - 3 > 0$	$4\sin^2(2x) - 3 > 0$
3) $x^2 - 4x + 3 \leq 0$	$\cos^2 x - 4\cos x + 3 \leq 0$	$\sin^2 x - 4\sin x + 3 \leq 0$	$\tan^2 x - 4\tan x + 3 \leq 0$	$\sin^2\left(2x + \frac{\pi}{3}\right) - 4\sin\left(2x + \frac{\pi}{3}\right) + 3 \leq 0$
4) $x^2 - 4x + 3 > 0$	$\cos^2 x - 4\cos x + 3 > 0$	$\sin^2 x - 4\sin x + 3 > 0$	$\tan^2 x - 4\tan x + 3 > 0$	$\tan^2\left(\frac{x}{2}\right) - 4\tan\left(\frac{x}{2}\right) + 3 > 0$
5) $x^2 - 4x + 5 \leq 0$	$\cos^2 x - 4\cos x + 5 \leq 0$	$\sin^2 x - 4\sin x + 5 \leq 0$	$\tan^2 x - 4\tan x + 5 \leq 0$	$\cos^2\left(\frac{\pi}{3} - x\right) - 4\cos\left(\frac{\pi}{3} - x\right) + 5 \leq 0$
6) $x^2 - 4x + 5 \geq 0$	$\cos^2 x - 4\cos x + 5 \geq 0$	$\sin^2 x - 4\sin x + 5 \geq 0$	$\tan^2 x - 4\tan x + 5 \geq 0$	$\tan^2(3x) - 4\tan(3x) + 5 \geq 0$
7) $2x - x^2 - 1 \geq 0$	$2\cos x - \cos^2 x - 1 \geq 0$	$2\sin x - \sin^2 x - 1 \geq 0$	$2\tan x - \tan^2 x - 1 \geq 0$	$2\sin\left(\frac{3x}{2}\right) - \sin^2\left(\frac{3x}{2}\right) - 1 \geq 0$
8) $2x - x^2 - 1 < 0$	$2\cos x - \cos^2 x - 1 < 0$	$2\sin x - \sin^2 x - 1 < 0$	$2\tan x - \tan^2 x - 1 < 0$	$2\cos\left(\frac{x}{3}\right) - \cos^2\left(\frac{x}{3}\right) - 1 < 0$
9) $ 2x \leq 1$	$ 2\cos x \leq 1$	$ 2\sin x \leq 1$	$ 2\tan x \leq 1$	$ 2\tan(3x + \pi) \leq 1$
10) $ 1 - x > 2x$	$ 1 - \cos x > 2\cos x$	$ 1 - \sin x > 2\sin x$	$ 1 - \tan x > 2\tan x$	$\left 1 - \sin\left(\frac{x}{2}\right)\right > 2\sin\left(\frac{x}{2}\right)$

$$\begin{array}{l}
11) \quad |1-2x| \leq x \qquad |1-2\cos x| \leq \cos x \qquad |1-2\sin x| \leq \sin x \qquad |1-2\tan x| \leq \tan x \qquad \left|1-2\sin\left(\frac{x}{2}\right)\right| \leq \sin\left(\frac{x}{2}\right) \\
12) \quad \sqrt{3x-1} \leq x \qquad \sqrt{3\cos x-1} \leq \cos x \qquad \sqrt{3\sin x-1} \leq \sin x \qquad \sqrt{3\tan x-1} \leq \tan x \qquad \sqrt{3\cos\left(x+\frac{\pi}{6}\right)-1} \leq \cos\left(x+\frac{\pi}{6}\right) \\
13) \quad \sqrt{2x^2+x} > 1-x \quad \sqrt{2\cos^2 x+\cos x} > 1-\cos x \quad \sqrt{2\sin^2 x+\sin x} > 1-\sin x \quad \sqrt{2\tan^2 x+\tan x} > 1-\tan x \quad \sqrt{2\tan^2(-x)+\tan(-x)} > 1-\tan(-x) \\
14) \quad x(x^2+3x)(1-2x) \leq 0 \qquad \sin x(\cos^2 x+3\cos x)(1-2\tan x) \leq 0 \qquad \tan x(\sin^2 x+3\sin x)(1-2\tan x) \leq 0 \\
15) \quad \frac{2x-1}{\sqrt{3x+1}} \leq 0 \qquad \frac{2\cos x-1}{\sqrt{3\tan x+1}} \leq 0 \qquad \frac{2\tan x-1}{\sqrt{3\cot x+1}} \leq 0 \qquad \frac{2\sin x-1}{\sqrt{3\cos x+1}} \leq 0 \\
\frac{2x^2+3x-5}{|x|-1} \leq 0 \qquad \frac{2\cos^2 x+3\cos x-5}{|\tan x|-1} \leq 0 \qquad \frac{2\tan^2 x+3\tan x-5}{|\sin x|-1} \leq 0 \qquad \frac{2\sin^2 x+3\sin x-5\cos^2 x}{|\cos x|-1} \leq 0 \\
\frac{\cos x+\sin x}{3\sin x-\sqrt{3}\cos x} \leq 0 \qquad \frac{\cos x+\sin x-1}{2\sin x-\sqrt{3}} \leq 0 \qquad \frac{\sqrt{3}\cos x+\sin x-1}{\sin^2 x+1} \leq 0
\end{array}$$