

Esercizio 1. $2 \sin x + 1 < 0$ [R. $\frac{7}{6}\pi + 2k\pi < x < \frac{11}{6}\pi + 2k\pi$]

Esercizio 2. $\tan x \leq -1$ [R. $\frac{\pi}{2} + k\pi < x \leq \frac{3}{4}\pi + k\pi$]

Esercizio 3. $\sin\left(x - \frac{\pi}{3}\right) \geq 0$ [R. $\frac{\pi}{3} + 2k\pi \leq x \leq \frac{4}{3}\pi + 2k\pi$]

Esercizio 4. $4 \cos^2 x - 4 \cos x - 3 \leq 0$ [R. $2k\pi \leq x \leq \frac{2}{3}\pi + 2k\pi \vee \frac{4}{3}\pi + 2k\pi \leq x \leq 2\pi + 2k\pi$]

Esercizio 5. $2 \cos^2 x + \cos x \geq 0$

[R. $2k\pi \leq x \leq \frac{\pi}{2} + 2k\pi \vee \frac{2}{3}\pi + 2k\pi \leq x \leq \frac{4}{3}\pi + 2k\pi \vee \frac{3}{2}\pi + 2k\pi \leq x \leq 2\pi + 2k\pi$]

Esercizio 6. $\sqrt{3} \sin x + \cos x \geq 0$ [R. $-\frac{\pi}{6} + 2k\pi \leq x \leq \frac{5}{6}\pi + 2k\pi$]

Esercizio 7. $(\sin x - \cos x + 1)(7 - \sin x + 2 \cos(2x)) \geq 0$ [R. $2k\pi \leq x \leq \frac{3}{2}\pi + 2k\pi$]

Esercizio 8. $(4 \sin x \cos x + 1)(5 - 4 \sin^2 x) \leq 0$ [R. $\frac{7}{12}\pi + k\pi \leq x \leq \frac{11}{12}\pi + k\pi$]

Esercizio 9. $2 - \cos x \leq \sqrt{2} \sin\left(x - \frac{\pi}{4}\right) + \sin x$ [R. $x = \frac{\pi}{2} + 2k\pi$]

Esercizio 10. $\sin x - (\sqrt{2} - 1) \cos x \leq 0$ [R. $2k\pi \leq x \leq \frac{\pi}{8} + 2k\pi \vee \frac{9}{8}\pi + 2k\pi \leq x \leq 2\pi + 2k\pi$]

Esercizio 11. $(\tan x + \sqrt{3})(2 \cos^2 x - 1) \leq 0$ [R. $\frac{\pi}{4} + k\pi \leq x < \frac{\pi}{2} + k\pi \vee \frac{2}{3}\pi + k\pi \leq x \leq \frac{3}{4}\pi + k\pi$]

Esercizio 12. $\frac{\tan x + \sqrt{3}}{2 \cos^2 x - 1} \leq 0$ [R. $\frac{\pi}{4} + k\pi < x < \frac{\pi}{2} + k\pi \vee \frac{2}{3}\pi + k\pi \leq x < \frac{3}{4}\pi + k\pi$]

Esercizio 13. $\frac{2 \sin^2 x - \sin x}{\cos^2 x} \geq 0$

[R. $\frac{\pi}{6} + 2k\pi \leq x < \frac{\pi}{2} + 2k\pi \vee \frac{\pi}{2} + 2k\pi < x \leq \frac{5}{6}\pi + 2k\pi \vee \pi + 2k\pi \leq x < \frac{3}{2}\pi + 2k\pi \vee \frac{3}{2}\pi + 2k\pi < x \leq 2\pi + 2k\pi$]

Esercizio 14. $\frac{\sqrt{3} \sin x - \cos x}{1 - \sin^2 x} \geq 0$ [R. $\frac{\pi}{6} + 2k\pi \leq x < \frac{\pi}{2} + 2k\pi \vee \frac{\pi}{2} + 2k\pi < x \leq \frac{7}{6}\pi + 2k\pi$]

Esercizio 15. $\frac{2 \cos x + \sqrt{3}}{\sin x(\cos x + 1)} \geq 0$ [R. $2k\pi < x \leq \frac{5}{6}\pi + 2k\pi \vee \pi + 2k\pi < x \leq \frac{7}{6}\pi + 2k\pi$]

Esercizio 16. $3 \sin^2 x + 2\sqrt{3} \sin x \cos x - 3 \cos^2 x \leq 0$ [R. $-\frac{\pi}{3} + k\pi \leq x \leq \frac{\pi}{6} + k\pi$]

Esercizio 17. $2 \sin^2 x - (2 - \sqrt{3}) \sin x - \sqrt{3} \leq 0$ [R. $-\frac{\pi}{3} + 2k\pi \leq x \leq \frac{4}{3}\pi + 2k\pi$]

Esercizio 18. $\sqrt{3} \tan^2 x - (\sqrt{3} + 1) \tan x + 1 \geq 0$

[R. $k\pi \leq x \leq \frac{\pi}{6} + k\pi \vee \frac{\pi}{4} + k\pi \leq x < \frac{\pi}{2} + k\pi \vee \frac{\pi}{2} + k\pi < x \leq \pi + k\pi$]

Esercizio 19. $\frac{3 \sin x - \sqrt{3} \cos x}{(2 \cos x + 1)(2 + \sin x)} \leq 0$

[R. $2k\pi \leq x \leq \frac{\pi}{6} + 2k\pi \vee \frac{2}{3}\pi + 2k\pi < x \leq \frac{7}{6}\pi + 2k\pi \vee \frac{4}{3}\pi + 2k\pi < x \leq 2\pi + 2k\pi$]

Esercizio 20. $\begin{cases} 1 - 2 \sin x \geq 0 \\ 2 \cos x - \sqrt{2} \leq 0 \end{cases}$ [R. $\frac{5}{6}\pi + 2k\pi \leq x \leq \frac{7}{4}\pi + 2k\pi$]

Esercizio 21. $\begin{cases} \sin x - \cos x > 0 \\ 1 + 2 \sin x > 0 \end{cases}$ [R. $\frac{\pi}{4} + 2k\pi < x < \frac{7}{6}\pi + 2k\pi$]

Esercizio 22. $\begin{cases} 2 \cos^2 x - 3 \cos x + 1 \geq 0 \\ 3 \tan x < \sqrt{3} \end{cases}$

[R. $x = 2k\pi \vee \frac{\pi}{2} + 2k\pi < x < \frac{7}{6}\pi + 2k\pi \vee \frac{3}{2}\pi + 2k\pi < x \leq \frac{5}{3}\pi + 2k\pi$]

Esercizio 23. $|4 \sin^2 x - 1| \leq 2$ [R. $-\frac{\pi}{3} + k\pi \leq x \leq \frac{\pi}{3} + k\pi$]

Esercizio 24. $|2 \sin x - 1| \geq 2 \sin x + 1$ [R. $\pi + 2k\pi \leq x \leq 2\pi + 2k\pi$]

Esercizio 25. $\sqrt{1 + \sin x} \leq 1 - \sin x$ [R. $\pi + 2k\pi \leq x \leq 2\pi + 2k\pi$]

Esercizio 26. $\sqrt{1 - \sin(2x)} > \cos(2x)$ [R. $\frac{\pi}{4} + k\pi < x < \pi + k\pi$]

Esercizio 27. Determina il dominio della funzione $f(x) = \ln\left(\frac{\sin x}{2 \cos^2 x - 1}\right) - 127 \cos^{54}(2 - 3x)$

[R. $2k\pi < x < \frac{\pi}{4} + 2k\pi \vee \frac{3}{4}\pi + 2k\pi < x < \pi + 2k\pi \vee \frac{5}{4}\pi + 2k\pi < x < \frac{7}{4}\pi + 2k\pi$]

Esercizio 28. Determina il dominio della funzione $f(x) = \sqrt{\frac{3 - 2 \cos^3(4x - \pi)}{\sin x + \sqrt{2} \sin^2 x}}$

[R. $2k\pi < x < \pi + 2k\pi \vee \frac{5}{4}\pi + 2k\pi < x < \frac{7}{4}\pi + 2k\pi$]