

più impegnative

1	$x^2 + 5x + 4 < 5\sqrt{x^2 + 5x + 28}$	$-9 < x < 4$
2	$1 - \cos x \geq \sqrt{\sin x}$	$\frac{\pi}{2} + 2k\pi \leq x \leq \pi + 2k\pi \vee x = 2k\pi$
3	$\frac{1}{(x-1)^3} + \frac{1}{x^3} \leq 0$	$x < 0 \vee \frac{1}{2} \leq x < 1$
4	$\sqrt{\frac{x^2 + 8 x - 9}{x^2 - 1}} \geq x - 3$	$x \leq \frac{5 + \sqrt{17}}{2}$
5	$3 \log_{\frac{1}{2}}(x-1) < 2 \log_{\frac{1}{2}} x + \log_{\frac{1}{2}}(x-3)$	$x > 3$
6	$\frac{x^2 + 4x + 2}{x+1} > \sqrt{x^2}$	$-2 < x < -1 \vee x > -\frac{1}{2}$
7	$\sqrt{13^x - 5} \leq \sqrt{2(13^x + 12)} - \sqrt{13^x + 5}$	$\log_{13} 5 \leq x \leq 1$
8	$\sin 2x > \cos x$	$\frac{\pi}{6} + 2k\pi < x < \frac{\pi}{2} + 2k\pi \vee$ $\frac{\pi}{2} + 2k\pi < x < \frac{5}{6}\pi + 2k\pi$
9	$\sqrt{2 \log_2 x + 3} \geq \log_2 x$	$\frac{1}{2\sqrt{2}} \leq x \leq 8$
10	$x^4 + 5x^3 + x^2 - 11x + 4 \geq 0$	$x \leq -4 \vee -1 - \sqrt{2} \leq x \leq -1 + \sqrt{2} \vee x \geq 1$

11	$2^x > 2 + 2^{-x}$	$x > \log_2(\sqrt{2} + 1)$
12	$x^3 - 11x^2 + 10x \leq 0$	$x \leq 0 \vee 1 \leq x \leq 10$
13	$\frac{x^2 - 3x - 18}{x^3 - 12x^2 + 32x} \leq 0$	$x \leq -3 \vee 0 < x < 4 \vee 6 \leq x < 8$
14	$\frac{a^x \sqrt{a^{2+x}}}{\sqrt[3]{a^{x-1}}} > a^2$	$\text{se } a < 1 \quad x > \frac{4}{7}$ $\text{se } 0 < a < 1 \quad x < \frac{4}{7}$
15	$(x + 3)^3(4 - x^2)^4(-x^2 + 6x - 5)^5 \geq 0$	$x \leq -3 \vee x = -2 \vee 1 \leq x \leq 5$
16	$2x + 1 > \sqrt{4x^2 - 9x + 2}$	$\frac{1}{13} < x \leq \frac{1}{4} \vee x \geq 2$
17	$\text{tg}x > \text{cot}gx$	$\frac{\pi}{4} + k\frac{\pi}{2} < x < \frac{\pi}{2} + k\frac{\pi}{2}$
18	$x^3 - 2x^2 - x + 2 \geq 0$	$-1 \leq x \leq 1 \vee x \geq 2$
19	$\frac{2e^{2x} - 6e^x + 2 + \frac{x}{ x }}{\sqrt{1 - (e^x - 1)^2}} \leq 0$	$\ln\left(\frac{3 - \sqrt{7}}{2}\right) \leq x < \ln 2 \wedge x \neq 0$
20	$\frac{(3 \ln x - 1) - 3\sqrt[3]{3 \ln x - 1} - 2}{\sqrt[3]{3 \ln x - 1}} \leq 0$	$\sqrt[3]{e} < x \leq e^3$

21	$-6x^2 - x + 1 > 0$	$-\frac{1}{3} < x < \frac{1}{3}$
22	$\cos(x + x) > 0$	$x < 0 \vee -\frac{\pi}{4} + k\pi < x < \frac{\pi}{4} + k\pi$
23	$\sqrt{\frac{2}{x} + 1 + x } < 1$	$-(1 + \sqrt{3}) < x \leq -2$
24	$\frac{\cos x + 2\cos^2 x + \cos 3x}{\cos x + 2\cos^2 x - 1} > 1$	$-\frac{\pi}{3} + 2k\pi < x < \frac{\pi}{3} + 2k\pi$
25	$\frac{\ln(x - 2)}{\sqrt{1 + \ln(x - 2)}} < 2$	$\frac{1}{e} + 2 < x < 2 + e^{2(1+\sqrt{2})}$
26	$\left \frac{3^{2x} - 1}{3^{2x} + 1} \right < 1$	\mathbb{R}
27	$\frac{1 - 2\operatorname{sen} x}{1 + 2\operatorname{cos} x} \leq 0$	$-\pi + 2k\pi < x < -\frac{2}{3}\pi + 2k\pi \vee$ $\frac{\pi}{6} + 2k\pi \leq x < \frac{2}{3}\pi + 2k\pi \vee$ $\frac{5}{6}\pi + 2k\pi \leq x \leq \pi + 2k\pi$
28	$\frac{\operatorname{sen} x}{\sqrt{1 - 2\operatorname{sen} x}} > 1, \quad x \in [0, 2\pi]$	$\frac{\pi}{8} + 2k\pi < x < \frac{\pi}{6} + 2k\pi \vee$ $\frac{5}{6}\pi + 2k\pi < x < \frac{7}{8}\pi + 2k\pi$
29	$\frac{\log_{\frac{3}{10}} x - 2 }{x^2 - 4x} < 0$	$x < 0 \vee 1 < x < 2 \vee 2 < x < 3 \vee x > 4$
30	$6\operatorname{sen}^2 x - \operatorname{sen} x \operatorname{cos} x - \operatorname{cos}^2 x > 2$	$\frac{\pi}{4} + k\pi < x < \pi - \operatorname{arctg} \frac{3}{4} + k\pi$

31	$\frac{\sqrt{ 1 - e^x - 1}}{e^x - 4} \geq 1$	$\ln 4 < x \leq \ln 6$
32	$\frac{tg^2 x - \sqrt{3}tgx}{tg^2 x - 1} < 1, \quad x \in [0, \pi]$	$0 \leq x < \frac{\pi}{6} \vee \frac{\pi}{4} < x < \frac{\pi}{2} \vee \frac{3}{4}\pi < x \leq \pi$
33	$\frac{1 - \ln(x^2 + x)}{\ln(x - 1)^2 - 1} \geq -1$	$x < -1 \vee \frac{1}{3} \leq x < 1 + \sqrt{e}$
34	$2\sqrt{\frac{x^2 - 4}{2x^2 - 5x + 3}} < \sqrt{2}$	$\frac{-5 - \sqrt{177}}{4} < x \leq -2 \vee 2 \leq x < \frac{-5 + \sqrt{177}}{4}$
35	$\frac{3x + 1 - 5 - x }{x + 2 + \sqrt{4 - x}} \geq 0$	$x < -5 \vee 1 \leq x \leq 4$
36	$\ln \frac{\sqrt[3]{x^2} - 4}{\sqrt[3]{x} - 1} \leq \ln \sqrt[3]{ x }$	$8 < x \leq 64$
37	$\log_{\frac{1}{2}} \frac{\sqrt[3]{x} + 2}{\sqrt[3]{x} - 1} \geq \log_{\frac{1}{2}} (\sqrt[3]{x} + 3)$	$x \geq -8 + 3\sqrt{21}$
38	$\sqrt[3]{8x^3 - 32x^2 + 65x - 21} > 2x - 3$	$x < -2 \vee x > -\frac{3}{4}$
39	$\frac{5 + x + \sqrt{1 - x}}{x^2 - 1} > \frac{2}{x - 1}$	$x < -1$
40	$\frac{\ln(x - 1)}{x} < 0$	$x < -2 \vee 1 < x < 2$
41	$\sqrt{2x + \sqrt{6x^2}} < x + 1$	$-\frac{\sqrt{3} - 1}{\sqrt{2}} < x < \frac{\sqrt{3} - 1}{\sqrt{2}} \vee x > \frac{\sqrt{3} + 1}{\sqrt{2}}$
42	$\frac{2^{x+1} - 7}{x - 1} < \frac{10}{3 - 2x}$	$1 < x < \frac{3}{2}$

43	$\frac{\sqrt{x^2 + 4x + 4} - 2x - 1 }{1 - \sqrt[3]{x^2 - 8}} < 0$	$-3 < x < -2\sqrt{2}$
44	$\frac{\log_2(\sqrt{4x + 5} - 1)}{\log_2(\sqrt{4x + 5} + 11)} > \frac{1}{2}$	$x > 5$
45	$ x - 1 ^{\log_2(4-x)} > x - 1 ^{\log_2(1+x)}$	$-1 < x < 0 \vee \frac{3}{2} < x < 2$
46	$\frac{3 - x^2 - 4 }{\sqrt[3]{x^3 - 8}} \leq 0$	$x \geq \sqrt{7}$
47	$\frac{\ln \cos x }{\cos^2 x - \cos x + 1} \geq 0$	$x = k\pi$
48	$\frac{e^{2x} - e^x}{2e^{2x} - 5e^x + 2} > -1$	$x < \ln \frac{3 - \sqrt{3}}{3} \vee \ln \frac{1}{2} < x < \ln \frac{3 + \sqrt{3}}{3} \vee x > \ln 2$
49	$\log(\sqrt{ x } - 1) < \log 2$	$-9 < x < -1 \vee 1 < x < 9$
50	$\frac{2x^2 - 1}{ x - 1} > \sqrt{x} + 1$	$x > 1$

L'ordine con cui sono presentate le disequazioni è puramente casuale