Sistemi di disequazioni di riepilogo

PASSED

risolvi i seguenti sistemi di disequazioni algebriche

1	$\begin{cases} \frac{x+2}{5}+\frac{x^2+1}{2} \geq 3 \\ (2x-1)^2-3x(x-1) \leq x+9 \end{cases}$	$\frac{-1+\sqrt{106}}{5} \leq x \leq 4$
2	$\begin{cases} \frac{x(2x-1)}{2}-\frac{(3x-1)(x+2)}{6}+2\frac{(x^2-1)}{3} > \frac{1-2x}{2} \\ \left(3x-\sqrt{2}\right)^2 < 2(x^2+6)+2x\left(3x-\sqrt{2}\right) \end{cases}$	$-\sqrt{2} < x < -\frac{5}{7} \vee 1 < x < 5\sqrt{2}$
3	$\begin{cases} x\left(x-\sqrt{2}\right)-\frac{\left(x\sqrt{2}-1\right)^2}{2}+\frac{x+\sqrt{2}}{2} > 1 \\ \left(\frac{1}{3}x-2\right)(x-1)+(x-1)^2 < x^2-x \end{cases}$	$3-\sqrt{2} < x < 9$
4	$\begin{cases} \frac{3x-1}{x-1}+\frac{x+3}{2x-2} > 2 \\ \frac{3x-x^2+10}{x^2-2x+1} \geq 0 \end{cases}$	$-2 \leq x < -\frac{5}{3} \quad \vee \quad 1 < x \leq 5$
5	$\begin{cases} x-x^2 > 0 \\ 2x^2+3x-5 < 0 \\ x^2+5x+6 > 0 \end{cases}$	$0 < x < 1$
6	$\begin{cases} \left(x-\sqrt{2}\right)\left(x+\sqrt{2}\right) \geq 2(-x-1)-1 \\ \frac{x^2-5x+6}{x^2-6x-7} > 0 \end{cases}$	$x < -1 \quad \vee \quad 2 < x < 3 \quad \vee \quad x > 7$

7	$\begin{cases} \dfrac{4-x^2}{3x+1} > 0 \\ \dfrac{3-2x}{x^2-5x+4} \leq 0 \end{cases}$	$1 < x \leq \dfrac{3}{2}$
8	$\begin{cases} \dfrac{5x^2-4x-1}{x(x-2)} < 0 \\ \dfrac{1}{x} - \dfrac{3}{x^2-1} < \dfrac{1}{x+1} \end{cases}$	$-\dfrac{1}{5} < x < 0 \quad \vee \quad 1 < x < 2$
9	$\begin{cases} \dfrac{3x}{x^2+1} - 1 > 0 \\ -\dfrac{x^2+2}{3x+2} + 1 \leq 0 \end{cases}$	$\emptyset$
10	$\begin{cases} \dfrac{3}{x} - \dfrac{1}{x^2} > 2 \\ 5(x^2-1)(x+2) < 0 \end{cases}$	$\dfrac{1}{2} < x < 1$
11	$\begin{cases} \dfrac{1-4x^2}{x^2-3x} \geq 0 \\ \dfrac{1}{x+2} - \dfrac{1}{x^2+x-2} < 0 \end{cases}$	$1 < x < 2$
12	$\begin{cases} \dfrac{x^2-3x-18}{x^2-12x+32} \leq 0 \\ \dfrac{1-x^2}{1-x+\sqrt{x^2-3x}} > 0 \end{cases}$	$-1 < x \leq 0 \vee 3 \leq x < 4 \vee 6 \leq x < 8$

13	$\begin{cases} \dfrac{x^2-3}{1-x^2} > -1 \\ \dfrac{\sqrt{x}-2x+3}{\lvert 2+x\rvert - x^2 - \lvert 3x\rvert} > 0 \end{cases}$	$x > \dfrac{9}{4}$
14	$\begin{cases} \sqrt{3x-1} - x \leq 0 \\ \dfrac{4x^2+1}{3x^2-4x+1} > 0 \end{cases}$	$x \geq \dfrac{3+\sqrt{5}}{2}$
15	$\begin{cases} x\sqrt{\dfrac{2}{x}} - 4 > 0 \\ \dfrac{1-x^3}{4x^2+3x-1} \leq 0 \end{cases}$	$x > 8$
16	$\begin{cases} \dfrac{x^5-1}{x^4-1} \geq 0 \\ 2\sqrt{x^2-3x} - x > 0 \end{cases}$	$-1 < x < 0 \quad \vee \quad x > 4$
17	$\begin{cases} \dfrac{2}{x+4} - \dfrac{1}{1-x} \leq \dfrac{1}{x^2+3x-4} \\ \dfrac{1}{\sqrt{2x-1}} > 0 \end{cases}$	$\dfrac{1}{2} < x < 1$

18	$\begin{cases}\sqrt{(4x-1)(x-1)}-1<2x\\ 2>\sqrt{9x-x^2-14}\end{cases}$	$2\le x<3 \quad \vee \quad 6<x\le 7$
19	$\begin{cases}x-2<\sqrt{2x-1}\\ \sqrt{x+2}-1>\sqrt{x-3}\end{cases}$	$3\le x<5$
	esercizi più impegnativi	
20	$\begin{cases}\lvert 2x^2+1\rvert<3-\lvert x\rvert\\ \dfrac{\sqrt{2-x^2}-3x+1}{\left\lvert\frac{x}{x-3}\right\rvert-2}>0\end{cases}$	$\dfrac{3+\sqrt{19}}{10}<x<\dfrac{-1+\sqrt{17}}{4}$
21	$\begin{cases}\lvert x-3\rvert+2x-5-\lvert 3-x^2\rvert<-5\\ \dfrac{-x^2+2x+8}{-x-1}<0\\ \dfrac{\sqrt{1-x}+1}{x+4}>1\end{cases}$	$-4<x<-2$
22	$\begin{cases}\dfrac{\lvert 1-x^2\rvert-1}{x^2-2x+3}\le 2\\ \dfrac{x}{2+x-\sqrt{\lvert x\rvert-x^2}}>0\end{cases}$	$0<x\le 1$

23	$\begin{cases} \sqrt{2x(x-1)} + 3x \geq 0 \\ \sqrt{3-x} > \dfrac{1}{2\sqrt{x}} \end{cases}$	$1 \leq x < \dfrac{3+2\sqrt{2}}{2}$
24	$\begin{cases} \dfrac{2-\sqrt{x}}{\sqrt{x}+\sqrt[3]{x}} > 0 \\ \dfrac{\sqrt{x^3-1}-1}{x^2-4x+4} \geq 0 \end{cases}$	$\sqrt[3]{2} \leq x < 2 \quad \vee \quad 2 < x < 4$
25	$\begin{cases} \dfrac{1+x^4}{x^3+1} \geq 0 \\ \dfrac{\sqrt{4x^2-4x+1}}{\lvert x^2 \rvert - 4} < 0 \end{cases}$	$-1 < x < \dfrac{1}{2} \quad \vee \quad \dfrac{1}{2} < x < 2$
26	$\begin{cases} \dfrac{1}{x^2} \geq \lvert x \rvert \\ \dfrac{\lvert x^2+4 \rvert - 4x}{x^2-2x-3} \leq 0 \end{cases}$	$-1 < x < 0 \quad \vee \quad 0 < x \leq 1$
27	$\begin{cases} \sqrt{2x^2-1} + \dfrac{\lvert x \rvert}{2} > 0 \\ \dfrac{\sqrt{2x^2-1}}{\sqrt{\lvert x \rvert - 1}} > 1 \end{cases}$	$x < -1 \quad \vee \quad x > 1$
28	$\begin{cases} \dfrac{\lvert x+2 \rvert - 2\lvert x \rvert + 1}{\sqrt{x-x^2}} > 0 \\ \dfrac{1}{x+2} - \dfrac{\lvert x \rvert}{2-x} \geq \dfrac{1}{x^2-4} \end{cases}$	$0 < x \leq \dfrac{\sqrt{21}-3}{2}$

29	$\begin{cases} \left\lvert \dfrac{\sqrt{2x-1}+1}{x-1} \right\rvert > 2 \\ \sqrt{\dfrac{4x^2-1}{x\lvert x\rvert -2}} - 1 \geq 0 \end{cases}$	$\sqrt{2} < x < \dfrac{5}{2}$
30	$\begin{cases} \sqrt{\lvert x-1\rvert} - \lvert 1-\sqrt{x}\rvert \leq 0 \\ \dfrac{1-2\lvert x^2-9\rvert - 2x}{x-2} + 1 > 0 \end{cases}$	$x = 0 \quad \vee \quad x = 1$
31	$\begin{cases} \dfrac{1-\sqrt{x}}{\lvert x-2\rvert - \lvert x\rvert} \leq 0 \\ \dfrac{\sqrt{x+2}}{x^2-x-6} + \dfrac{1}{\lvert 3-x\rvert} > \dfrac{1}{\lvert x+2\rvert} \end{cases}$	$\emptyset$
32	$\begin{cases} \dfrac{2}{\lvert x\rvert} - \dfrac{1}{\lvert x-2\rvert} > 1 \\ \sqrt{3-2\lvert x\rvert} > \lvert x+1\rvert \end{cases}$	$-\sqrt{2} < x < 0 \vee 0 < x < \sqrt{6}-2$
33	$\begin{cases} \dfrac{\sqrt[4]{-4+5x^2} - x}{\lvert 2+x\rvert - 2\lvert x^2-1\rvert + 1} > 0 \\ \dfrac{\left(1-\sqrt{2x}\right)\left(\sqrt{4x^2-1}-2\right)}{\left\lvert x-1+\lvert x\rvert\right\rvert - 1} > 0 \end{cases}$	$1 < x < \dfrac{\sqrt{5}}{2}$