

Risolvere le seguenti disequazioni di II grado

4	$x^2 - 6x \leq 0$	$5x^2 > 0$	R. $0 \leq x \leq 6$ R. $x \neq 0$
5	$x^2 - x > 0$	$x^2 \leq 0$	R. $x < -1 \vee x > 0$ R. $x = 0$
6	$3x^2 \leq -1$	$x^2 - 9 > 0$	R. \emptyset R. $x_1 < -3 \vee x > 3$
7	$2x^2 - 3x + 1 > 0$	$-x^2 + 3x \geq 0$	R. $x < \frac{1}{2} \vee x > 1$ R. $0 \leq x \leq 3$
8	$3x^2 + x - 2 > 0$	$x^2 - 4 > 0$	R. $x_1 < -1 \vee x > \frac{2}{3}$ R. $x_1 < -2 \vee x > 2$
9	$\frac{4}{3}x^2 - \frac{1}{3}x - 1 < 0$	$x^2 - 8 \leq 0$	R. $-\frac{3}{4} < x < 1$ R. $-2\sqrt{2} \leq x \leq 2\sqrt{2}$
10	$x^2 - 5x + 3 \geq 0$	$x^2 - 4x + 9 > 0$	R. $x \leq \frac{5 - \sqrt{13}}{2} \vee x \geq \frac{5 + \sqrt{13}}{2}$ R. \mathbb{R}
11	$x^2 - 6x + 8 \leq 0$	$x^2 + 3x - 4 \geq 0$	R. $2 \leq x \leq 4$ R. $x \leq -4 \vee x \geq 1$
12	$x^2 - 4x - 9 \leq 0$	$x^2 - 9x + 18 < 0$	R. $2 - \sqrt{13} \leq x \leq 2 + \sqrt{13}$ R. $3 < x < 6$
13	$x^2 - 8x + 15 \geq 0$	$-2x^2 \geq 0$	R. $x \leq 3 \vee x \geq 5$ R. $x = 0$
14	$3x^2 - \frac{2}{3}x - 1 \leq 0$	$x^2 + 5 > 0$	R. $\frac{1 - 2\sqrt{7}}{9} \leq x \leq \frac{1 + 2\sqrt{7}}{9}$ R. \mathbb{R}
15	$x^2 + 6x - 2 > 0$	$2x^2 + 5x + 4 \leq 0$	R. $[x < -3 - \sqrt{11} \vee x > -3 + \sqrt{11}]$ R. \emptyset
16	$x^2 - 3x - \frac{5}{2} < 0$	$x^2 + 1 > 0$	R. $x < \frac{3 - \sqrt{19}}{2} \vee x > \frac{3 + \sqrt{19}}{2}$ R. \mathbb{R}
17	$-x^2 + 5 \leq 0$	$x^2 + x \geq 0$	R. $x \leq -\sqrt{5} \vee x \geq \sqrt{5}$ R. $x \leq -1 \vee x \geq 0$
18	$(x+1)^2 \geq 0$	$x^2 > 1$	R. \mathbb{R} R. $x < -1 \vee x > 1$
19	$2x^2 - 6 < 0$	$-x^2 - 1 \leq 0$	R. $-\sqrt{3} < x < \sqrt{3}$ R. \mathbb{R}
20	$9 - 4x^2 \leq 0$	$3x - 2x^2 > 0$	R. $x \leq -\frac{3}{2} \vee x \geq \frac{3}{2}$ R. $0 < x < \frac{3}{2}$
21	$x^2 \geq 0$	$2x^2 + 4 > 0$	R. \mathbb{R} R. \mathbb{R}
22	$x^2 - x - 2 > 0$	$x^2 + 11x + 30 \leq 0$	R. $x < -1 \vee x > 2$ R. $-6 \leq x \leq -5$
23	$-x^2 + 4x + 3 > 0$	$x^2 + 4x + 4 < 0$	R. $2 - \sqrt{7} < x < 2 + \sqrt{7}$ R. \emptyset
24	$x^2 - x + 1 < 0$	$x^2 - \frac{1}{9} \geq 0$	R. \emptyset R. $x \leq -\frac{1}{3} \vee x \geq \frac{1}{3}$
25	$9x^2 + 3x - 2 \leq 0$	$2x^2 + 5 < 0$	R. $-\frac{2}{3} \leq x \leq \frac{1}{3}$ R. \emptyset
26	$4x - x^2 \geq 0$	$9x^2 + 10x + 1 \leq 0$	R. $0 \leq x \leq 4$ R. $-1 \leq x < -\frac{1}{9}$
27	$0,01x^2 - 1 > 0$	$1,6x^2 - 2x \leq 0$	R. $x < -10 \vee x > 10$ R. $0 \leq x < \frac{6}{5}$
28	$\frac{1}{2}x^2 - \frac{1}{8} > 0$	$4x^2 + \frac{5}{3}x - 1 \leq 0$	R. $x < -\frac{1}{2} \vee x > \frac{1}{2}$ R. $-\frac{3}{4} \leq x \leq \frac{1}{3}$
29	$x^2 + x + \sqrt{2} > 0$	$x^2 + 2\sqrt{2}x + 2 > 0$	R. \mathbb{R} R. $\mathbb{R} - [\sqrt{2}]$
30	$12x^2 - 3 \geq 4x(2x - 1)$	$2x^2 - 11x - 6 \geq 0$	R. $x \leq -\frac{3}{2} \vee x \geq \frac{1}{2}$ R. $-\frac{1}{2} \leq x \leq 6$
31	$(3x+1)^2 > (2x-1)^2$		R. $x < -2 \vee x > 0$
32	$(x+1)(x-1)^2 > x^3$		R. $-\frac{\sqrt{5}+1}{2} < x < \frac{\sqrt{5}-1}{2}$
33	$(x+3)(x+2) < -(x+2)^2$		R. $-\frac{5}{2} < x < -2$

- 34 $\frac{x+1}{2} + \frac{(x+1)(x-1)}{4} > x^2 - 1$ R. $-1 < x < \frac{5}{3}$
- 35 $(x+1)^3 - (x+2)^2 > \frac{2x^3-1}{2}$ R. $x < \frac{1-\sqrt{21}}{4} \vee x > \frac{1+\sqrt{21}}{4}$
- 36 $(x-2)(3-2x) \geq x-2$ R. $1 \leq x \leq 2$
- 37 $(3x+1)\left(\frac{5}{2}+x\right) \leq 2x-1$ R. $-\frac{7}{6} \leq x \leq -1$
- 38 $\frac{x^2+16}{4} + x - 1 < \frac{x-3}{2}$ R. \emptyset
- 39 $\frac{3x-2}{2} < x^2 - 2$ R. $x \leq -\frac{1}{2} \vee x \geq 2$
- 40 $\frac{x-3}{2} - \frac{x^2+2}{3} < 1+x$ R. \mathbb{R}
- 41 $(x+4)^2 + 8 \geq \frac{x-1}{3}$ R. \mathbb{R}
- 42 $\left(\frac{x-1}{3} - \frac{x}{6}\right)^2 \leq (x+1)^2$ R. $x \leq -\frac{8}{5} \vee x \geq -\frac{4}{7}$
- 43 $3x-5+(1-3x)^2 > (x-2)(x+2)$ R. $x < 0 \vee x > \frac{3}{8}$
- 44 $\frac{x-2}{3} - (3x+3)^2 > x$ R. $-\frac{29}{27} < x < -1$
- 45 $(x-2)^3 - x^3 > x^2 - 4$ R. $\frac{6-2\sqrt{2}}{7} < x < \frac{6+2\sqrt{2}}{7}$
- 46 $(2-x)^3 - (2-x)^2 < \frac{3-4x^3}{4}$ R. $I.S. = \emptyset$
- 47 $(x+200)^2 + x + 200 < 2$ R. $-202 < x < -199$
- 48 $\frac{(3-x)^2}{2} - 1 \geq -\frac{x^2-4}{4}$ R. $x \leq 2 - \frac{\sqrt{6}}{3} \vee x \geq 2 + \frac{\sqrt{6}}{3}$
- 49 $(x+1)^2 > (x-1)^2 + (x+2)^2 + 4x$ R. $I.S. = \emptyset$
- 50 $\frac{x^2}{4} + x < \frac{x+3}{4} + \frac{x}{2} - \frac{1-\frac{x}{2}}{2}$ R. $-1 < x < 1$

Determinare l'Insieme Soluzione delle seguenti disequazioni fratte

$$145 \quad \frac{x^2 - 8x + 15}{x^2 + 3x + 2} > 0$$

$$I.S. = (-\infty; -2) \cup (-1; 3) \cup (5; +\infty)$$

$$146 \quad \frac{x^2 + 1}{x^2 - 2x} > 0$$

$$I.S. = \{x \in \mathbb{R} \mid x < 0 \vee x > 2\}$$

$$147 \quad \frac{4 - x^2 + 3x}{x^2 - x} > 0$$

$$I.S. = \{x \in \mathbb{R} \mid -1 < x < 0 \vee 1 < x < 4\}$$

$$148 \quad \frac{4 - x^2 + 3x}{x^2 - x} > 0$$

$$I.S. = (-2; 2)$$

$$149 \quad \frac{x + 5}{x^2 - 25} > 0$$

$$I.S. = (5; +\infty)$$

$$150 \quad \frac{x^2 - 2x}{5 - x^2} > 0$$

$$I.S. = \{x \in \mathbb{R} \mid -\sqrt{5} < x < 0 \vee 2 < x < \sqrt{5}\}$$

$$151 \quad \frac{4x + 7}{3x^2 - x - 2} > 0$$

$$I.S. = \left\{x \in \mathbb{R} \mid -\frac{7}{4} < x < -\frac{2}{3} \vee x > 1\right\}$$

$$152 \quad \frac{9 - x^2}{2x^2 - x - 15} > 0$$

$$I.S. = \left(-3; -\frac{5}{2}\right)$$

$$153 \quad \frac{-x^2 - 4x - 3}{6x - x^2} > 0$$

$$I.S. = (-\infty; -3) \cup (-1; 0) \cup (6; +\infty)$$

$$154 \quad \frac{x^2 - 7x}{-x^2 - 8} > 0$$

$$I.S. = \{x \in \mathbb{R} \mid 0 < x < 7\}$$

$$155 \quad \frac{1}{x^2 + 2x + 1} > 0$$

$$I.S. = \{x \in \mathbb{R} - \{-1\}\}$$

$$156 \quad \frac{-3}{-x^2 - 4x - 8} > 0$$

$$I.S. = \{x \in \mathbb{R}\}$$

$$157 \quad \frac{x^2 + 2x + 3}{-x^2 - 4} > 0$$

$$I.S. = \emptyset$$

$$158 \quad \frac{3x - 12}{x^2 - 9} > 0$$

$$I.S. = (-3; 3) \cup (4; +\infty)$$

$$177 \quad \frac{x^2 + 3x + 2}{25 - x^2} > 0$$

$$I.S. = (-5; -2) \cup (-1; 5)$$

$$178 \quad \frac{x^2 - x - 2}{x - x^2 + 6} > 0$$

$$I.S. = \{x \in \mathbb{R} \mid -2 < x < -1 \vee 2 < x < 3\}$$

$$179 \quad \frac{9 - x^2}{x^2 + 5x + 6} < 0$$

$$I.S. = \{x \in \mathbb{R} \mid x < -3 \vee -3 < x < -2 \vee x > 3\}$$

$$180 \quad \frac{6x - 2x^2}{4 - x^2} > 0$$

$$I.S. = (-\infty; -2) \cup (0; 2) \cup (3; +\infty)$$

$$181 \quad \frac{2x - 4x^2}{x^2 + x - 12} < 0$$

$$I.S. = (-\infty; -4) \cup \left(0; \frac{1}{2}\right) \cup (3; +\infty)$$

Risolvere i seguenti sistemi di disequazioni:

213	$\begin{cases} x^2+5x+6 \leq 0 \\ 2x+5 \leq 0 \end{cases}$	$I.S. = \left\{ x \in \mathbb{R} \mid -3 \leq x \leq -\frac{5}{2} \right\}$
214	$\begin{cases} 3x-x^2-2 \leq 0 \\ x^2 > 49 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid x < -7 \vee x > 7 \}$
215	$\begin{cases} 3x-2 > 0 \\ x^2-1 > 0 \\ 2x-x^2 < 0 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid x > 2 \}$
216	$\begin{cases} x^2-4x+4 \geq 0 \\ x < 6 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid x < 6 \}$
217	$\begin{cases} x^2-4x+4 > 0 \\ x \leq 6 \\ 1-x^2 \leq 0 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid x \leq -1 \vee 1 \leq x < 2 \vee 2 < x \leq 6 \}$
218	$\begin{cases} x^2+6x+9 < 0 \\ x < 2 \\ x^2+1 > 0 \end{cases}$	$I.S. = \emptyset$
219	$\begin{cases} x^2+6x+9 \leq 0 \\ x < 2 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid x = -3 \}$
220	$\begin{cases} 4x-x^2-3 < 0 \\ 3x \geq 2 \end{cases}$	$I.S. = \left\{ x \in \mathbb{R} \mid \frac{2}{3} \leq x < 1 \vee x > 3 \right\}$
221	$\begin{cases} 2x^2 < 8 \\ -x^2+5x > -6 \\ x^2(9-x^2) \leq 0 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid x = 0 \}$
222	$\begin{cases} (x^2-4x+3)(2x-4) > 0 \\ 2x-x^2 \leq 1 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid 1 < x < 2 \vee x > 3 \}$
223	$\begin{cases} (3-x)(x^2-4)(x^2-2x-8) < 0 \\ x^2-64 \leq 0 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid 2 < x < 3 \vee 4 < x \leq 8 \}$
224	$\begin{cases} 2x^2-x-1 \leq 0 \\ 3x+7 > 0 \\ x^2-10x+9 \leq 0 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid x = 1 \}$
225	$\begin{cases} 2x^2-x-1 < 0 \\ 3x+7 > 0 \end{cases}$	$I.S. = \emptyset$
226	$\begin{cases} x^2-10x+25 > 0 \\ x < 7 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid x < 5 \vee 5 < x < 7 \}$
227	$\begin{cases} x^2-10x+25 \geq 0 \\ x < 7 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid x < 7 \}$
228	$\begin{cases} x^2-4x+3 \leq 0 \\ x^2-4 > 0 \\ x^2+1 > 0 \\ x-1 > 0 \end{cases}$	$I.S. = \{ x \in \mathbb{R} \mid 2 < x \leq 3 \}$
229	$\begin{cases} x^2-5x+6 \leq 0 \\ x^2-1 > 0 \\ x^2+1 < 0 \\ x-1 > 0 \end{cases}$	$I.S. = \emptyset$