

B10. Disequazioni - Esercizi

DISEQUAZIONI DI PRIMO GRADO

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| 1) $5(x-3) > x-5$ | $[x > 5/2]$ |
| 2) $(2x-1)^2 \geq (x-2)^2 + x(3x-2)$ | $[x \geq 3/2]$ |
| 3) $2(x-1)(x-2) - 4(x-1)^2 \leq -2(x^2-1)$ | $[x \leq 1]$ |
| 4) $1 - (x-2)(x+2) < 4x - (x-3)^2$ | $[x > 7/5]$ |
| 5) $(x+3)^2 > (5+x)x + 4x$ | $[x < 3]$ |
| 6) $(3x+1)^2 - 4x(x-2) \leq 5x(x+6) - 16x$ | [impossibile] |
| 7) $(x-2)(2x+1) < 2x(x-3) + 3x$ | $[\forall x \in \mathbb{R}]$ |
| 8) $\frac{3x+1}{4} - \frac{2x+1}{2} < 1$ | $[x > -5]$ |
| 9) $\frac{3-2x}{3} - \frac{1-x}{4} > 2 - \frac{3x-2}{6}$ | $[x > 19]$ |
| 10) $(x+1)(x-2)(x+2) \geq (x+1)^3 - 2x^2$ | $[x \leq -5/7]$ |
| 11) $12 < (1+3x)^2 - (1-3x)^2$ | $[x > 1]$ |
| 12) $\frac{1}{3} + \frac{2}{3}x - \frac{5}{6}x < x+1 - \frac{2}{3}x$ | $[x > -4/3]$ |
| 13) $\frac{1-x^2}{4} < \frac{5+3x}{15} - \frac{3x^2-2x}{12}$ | $[x > -5/22]$ |
| 14) $(2-\sqrt{5})x - \sqrt{5} + 2 > 0$ | $[x < -1]$ |
| 15) $\frac{3x}{1+\sqrt{2}} - \frac{2x+1}{1-\sqrt{2}} \leq 1$ | $[x \leq -\frac{\sqrt{2}+10}{49}]$ |

DISEQUAZIONI DI SECONDO GRADO

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| 16) $2x^2 + 5 \geq 0; x^2 - 2x - 3 \geq 0$ | $[\forall x \in \mathbb{R}; x \leq -1 \text{ e } x \geq 3]$ |
| 17) $2x^2 + x - 1 > 0; x^2 + 2x + 1 > 0$ | $[x < -1 \text{ e } x > 1/2; x \neq -1]$ |
| 18) $-x^2 + 3x - 6 > 0; -4x^2 + 12x - 9 \geq 0$ | [impossibile; $x=3/2$] |
| 19) $x^2 - 2x + 1 > 0; x^2 + 2x + 1 \leq 0$ | $[x \neq 1; x = -1]$ |
| 20) $x^2 + 6x + 8 \leq 0; -x^2 + 2x + 3 > 0$ | $[-4 \leq x \leq -2; -1 < x < 3]$ |
| 21) $x^2 + 4 > 0; x^2 - 2x > 0$ | $[\forall x \in \mathbb{R}; x < 0 \text{ e } x > 2]$ |
| 22) $3x - x^2 > 0; -x^2 \geq 0$ | $[0 < x < 3; x = 0]$ |
| 23) $x^2 - 1 > 0; x^2 > 0$ | $[x < -1 \text{ e } x > 1; x \neq 0]$ |
| 24) $2x^2 + 5 < 0; -x^2 - 6 > 0$ | [impossibile; impossibile] |
| 25) $x^2 - 10x \geq 0; x^2 - 36 \leq 0$ | $[x \leq 0 \text{ e } x \geq 10; -6 \leq x \leq 6]$ |
| 26) $x^2 + 4x + 4 \geq 0; x^2 - 3x + 5 > 0$ | $[\forall x \in \mathbb{R}; \forall x \in \mathbb{R}]$ |
| 27) $2x^2 + 3x - 2 < 0; 3x^2 + 7x - 6 < 0$ | $[-2 < x < 1/2; -3 < x < 2/3]$ |
| 28) $4x^2 - 4x + 1 \geq 0; x^2 + x + 1 > 0$ | $[\forall x \in \mathbb{R}; \forall x \in \mathbb{R}]$ |
| 29) $x^2 - 10x + 25 > 0; x^2 + 5x + 10 \leq 0$ | $[x \neq 5; \text{impossibile}]$ |
| 30) $9x^2 - 12x + 4 > 0; 9x^2 - 4 > 0$ | $[x \neq 2/3; x < -2/3 \text{ e } x > 2/3]$ |
| 31) $2x^2 + 6 > 0; 6x - x^2 > 0$ | $[\forall x \in \mathbb{R}; 0 < x < 6]$ |
| 32) $-x^2 > 0; 8x^2 - 10x - 3 \geq 0$ | [impossibile $x \leq -1/4 \text{ e } x \geq 3/2$] |
| 33) $18x^2 + 16x - 2 \geq 0; 1 - x^2 \leq 0$ | $[x \leq -1 \text{ e } x \geq 1/9; x \leq -1 \text{ e } x \geq 1]$ |
| 34) $(3x-1)(9x^2 + 6x + 1) \leq (3x-1)^3$ | $[0 \leq x \leq 1/3]$ |
| 35) $5x(x-3) < -36 + (x-6)^2$ | $[0 < x < 3/4]$ |

DISEQUAZIONI DI GRADO SUPERIORE AL SECONDO

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| 36) $x^4 - 10x^2 + 9 > 0$ | $[x < -3; -1 < x < 1; x > 3]$ |
| 37) $5x^3 + 10x^2 + 30x > 0$ | $[x > 0]$ |

- 38) $x^3 + 3x^2 + 3x + 1 \leq 0$ [$x \leq -1$]
 39) $-3x^2(5 - 2x)(x + 1) \geq 0$ [$x \leq -1$; $x=0$; $x \geq 5/2$]
 40) $2x^3 + 3x^2 - 3x - 2 < 0$ [$x < -2$; $-1/2 < x < 1$]
 41) $x^4 - 8x^2 + 16 > 0$ [$x \neq -2$; $x \neq 2$]
 42) $(3x^2 - 27)(-x + 1) \geq 0$ [$x \leq -3$; $1 \leq x \leq 3$]
 43) $8x^3 - 12x^2 + 6x - 1 > 0$ [$x > 1/2$]
 44) $(x^2 - 2x - 3)(3x - x^2) < 0$ [$x < -1$; $0 < x < 3$; $x > 3$]
 45) $3x^3 - x^2 - 3x + 1 > 0$ [$-1 < x < 1/3$; $x > 1$]
 46) $x^3 + 6x^2 + 11x + 6 \leq 0$ [$x \leq -3$; $-2 \leq x \leq -1$]
 47) $x^6 + 26x^3 - 27 > 0$ [$x < -3$; $x > 1$]
 48) $3x^3 + 12x^2 + 9x \leq 0$ [$x \leq -3$; $-1 \leq x \leq 0$]
 49) $-2x^3(x^2 + 1)(x - 2) > 0$ [$0 < x < 2$]
 50) $(x - 3)^4(2x - 1)^3(x^2 - x - 12) \geq 0$ [$-3 \leq x \leq 1/2$; $x=3$; $x \geq 4$]

DISEQUAZIONI FRATTE

- 51) $\frac{5-x}{x+1} < 2$ [$x < -1$; $x > 1$]
 52) $\frac{3x-1}{2-3x} \geq 1$ [$\frac{1}{2} \leq x < \frac{2}{3}$]
 53) $\frac{x-1}{2x} - 3 > \frac{x-2}{2x}$ [$0 < x < \frac{1}{6}$]
 54) $\frac{1-x}{2x-1} + x \leq \frac{x}{1-2x}$ [$x < \frac{1}{2}$]
 55) $\frac{2x^2}{x-3} - x \geq 1 + x$ [$x \leq -\frac{3}{5}$; $x > 3$]
 56) $\frac{x-1}{5} - 2 \geq \frac{1}{x-1}$ [$6 - \sqrt{30} \leq x < 1$; $x \geq 6 + \sqrt{30}$]
 57) $\frac{3}{2+x} - \frac{1}{2-x} \geq 1$ [$-2 < x \leq 0$; $2 < x \leq 4$]
 58) $\frac{x+1}{(x+2)^2} - \frac{2}{x+2} \geq 0$ [$x \leq -3$]
 59) $\frac{x+1}{3x-9} - \frac{x-1}{4x-12} \geq -\frac{x}{2x-6}$ [$x \leq -1$; $x > 3$]
 60) $\frac{x^2}{(x+2)^2} - \frac{x}{x+2} \geq 0$ [$x \leq 0$; $x \neq -2$]
 61) $\frac{3}{x-2} - \frac{2x}{x+2} < \frac{x^2-12}{4-x^2}$ [$x < -2$; $1 < x < 2$; $x > 6$]
 62) $\frac{x^2-6x+9}{x^2-2x-3} \geq 0$ [$x < -1$; $x > 3$]
 63) $\frac{-2x^2+10}{x^2-x} \geq 0$ [$-\sqrt{5} \leq x < 0$; $1 < x \leq \sqrt{5}$]
 64) $\frac{-2x^3+2x}{x^2-2x+1} \leq 0$ [$-1 \leq x \leq 0$; $x > 1$]
 65) $\frac{2x}{4x^2-4x+1} - \frac{x}{4x^2-1} \geq 0$ [$-\frac{3}{2} \leq x < -\frac{1}{2}$; $x \geq 0$; $x \neq \frac{1}{2}$]
 66) $\frac{2x-1}{x+5} > \frac{x+5}{2x-1}$ [$-\frac{4}{3} < x < \frac{1}{2}$; $x < -5$; $x > 6$]
 67) $\frac{2x-1}{x} - \frac{x^2-x-1}{x^2+x} \geq \frac{x+2}{x+1}$ [$x \neq 0$; $x \neq -1$]
 68) $\frac{x^2-4x+4}{2x^2-5x+2} < 0$ [$\frac{1}{2} < x < 2$]
 69) $\frac{-x^2+x}{x^2+3x-4} \leq 0$ [$x < -4$; $x \geq 0$; $x \neq 1$]
 70) $\frac{2x-2x^2}{2x^2-x-1} \geq 0$ [$-\frac{1}{2} < x \leq 0$]
 71) $\frac{x^3-4x}{x^2-5x+6} < 0$ [$x < -2$; $0 < x < 2$; $2 < x < 3$]

- 72) $\frac{2x+5}{2x-5} - \frac{2x-5}{2x+5} \leq \frac{-40x}{25-4x^2}$ [$x \neq -\frac{5}{2}$; $x \neq \frac{5}{2}$]
- 73) $\frac{7}{4x^2-4} + \frac{1}{x+1} < \frac{1}{8}$ [$x < -1$; $4 - \sqrt{23} < x < 1$; $x > 4 + \sqrt{23}$]
- 74) $\frac{x-1}{x^2-x-2} + \frac{x+3}{x^2+4x+3} - \frac{1}{x+1} < 0$ [$x < -3$; $-3 < x < -1$; $1 < x < 2$]
- 75) $\frac{1}{x^2+5x+6} + \frac{1}{x^2-2x-8} \leq \frac{2}{x^2+4x+4}$ [$x \leq -\frac{22}{5}$; $-3 < x < 4$; $x \neq -2$]
- 76) $\frac{x+2}{x-3} \geq \frac{x^2+8}{3x-x^2} + \frac{x-1}{x}$ [$x \leq -5$; $-1 \leq x < 0$; $x > 3$]
- 77) $\frac{x-1}{x^2-x+1} - \frac{1}{x+1} \geq \frac{-x^2}{x^3+1}$ [$-2 \leq x < -1$; $x \geq 1$]
- 78) $\frac{2x}{x^3+x^2+x+1} - \frac{x-1}{x^2+1} - \frac{x}{x+1} \geq 0$ [$-1 < x \leq 1$]
- 79) $\frac{x-1}{2+x} + \frac{3x^2-4}{x^2-4} < \frac{x+1}{2-x}$ [$-2 < x < 2$; $x \neq 0$]
- 80) $\frac{7x-3}{x^3-7x+6} - \frac{2x}{x^2-3x+2} \geq \frac{-1}{x+3}$ [$x < -3$; $x = -1$; $1 < x < 2$]

SISTEMI DI DISEQUAZIONI

- 81) $\begin{cases} 5x > 15 \\ x - 2 > 0 \end{cases}$ [$x > 3$]
- 82) $\begin{cases} x + 1 < 3x - 2 \\ 3 - x \leq 0 \end{cases}$ [$x \geq 3$]
- 83) $\begin{cases} x + 1 > 0 \\ -x + 1 \geq 0 \end{cases}$ [$-1 < x \leq 1$]
- 84) $\begin{cases} x - 2(3 + x) < x \\ 5x - 2x + 3 < 0 \end{cases}$ [$-3 < x < -1$]
- 85) $\begin{cases} x - \frac{4}{5} > 0 \\ 5x - 4 \leq 0 \end{cases}$ [impossibile]
- 86) $\begin{cases} 3x - 45 \leq 0 \\ 3(x - 5) - 2x \geq 0 \end{cases}$ [$x = 15$]
- 87) $\begin{cases} 3x - 2(x + 1) > 0 \\ (5x - 2)(x + 1) < 5x^2 \end{cases}$ [impossibile]
- 88) $\begin{cases} \frac{1}{2}x + \frac{1}{3}x \geq \frac{5}{6}x \\ 5(x - 3) \leq 5x \end{cases}$ [$\forall x$]
- 89) $\begin{cases} \frac{2+x}{x-1} > 0 \\ 3x - 6 < 0 \end{cases}$ [$x < -2$; $1 < x < 2$]
- 90) $\begin{cases} \frac{x-1}{2} + \frac{1}{3}x < \frac{2x+1}{6} \\ \frac{2}{x+1} \leq 1 \end{cases}$ [$x < -1$; $1 \leq x < 4/3$]
- 91) $\begin{cases} x(2x - 3) > 0 \\ 2x^2 - x - 3 < 0 \end{cases}$ [$-1 < x < 0$]
- 92) $\begin{cases} -x^2 + 4 > 0 \\ x^2 - 4x + 3 < 0 \end{cases}$ [$1 < x < 2$]
- 93) $\begin{cases} x^2 - 4x - 12 \geq 0 \\ -x^2 - x + 2 < 0 \end{cases}$ [$x < -2$; $x \geq 6$]
- 94) $\begin{cases} 4x^2 - 12x + 9 > 0 \\ x^2 - 4x \leq 0 \end{cases}$ [$0 \leq x \leq 4$; $x \neq 3/2$]

$$95) \begin{cases} 2x^2 + 2x - 4 \geq 0 \\ \frac{x+2}{3-x} \geq 0 \end{cases} \quad [x=-2; 1 \leq x < 3]$$

$$96) \begin{cases} x^3 - 6x^2 + 5x < 0 \\ -x^2 + 2x + 3 \geq 0 \end{cases} \quad [-1 \leq x < 0; 1 < x \leq 3]$$

$$97) \begin{cases} \frac{2-x}{x+3} \geq 0 \\ -5x + 10 \leq 0 \end{cases} \quad [x=2]$$

$$98) \begin{cases} x^3 - x > 0 \\ 9x^2 - 16 \leq 0 \\ x^5 \geq 0 \end{cases} \quad [1 < x \leq 4/3]$$

$$99) \begin{cases} (x+3)^2 > 0 \\ 3x^2 + 2x > 0 \\ \frac{x+4}{x+2} < 0 \end{cases} \quad [-4 < x < -2; x \neq -3]$$

$$100) \begin{cases} (x-1)^2 \leq 0 \\ x^2 - 2x < 0 \\ x^2 - 1 \geq 0 \end{cases} \quad [x=1]$$

EQUAZIONI CON I VALORI ASSOLUTI

$$101) |x-3|=3x+1 \quad [x=1/2]$$

$$102) 2x-|3x-1|=x-1 \quad [x_1=0; x_2=1]$$

$$103) |3x-6|=0 \quad [x=2]$$

$$104) |x^2+2x-16|=8 \quad [x_1=-6; x_2=-4; x_3=2; x_4=4]$$

$$105) |x^2-4|=3x \quad [x_1=-1; x_2=1]$$

$$106) |x+7|=4 \quad [x_1=-3; x_2=-11]$$

$$107) |7-2x|=1 \quad [x_1=3; x_2=4]$$

$$108) |2x-5|=x+4 \quad [x_1=1/3; x_2=9]$$

$$109) 3x+|x+4|=-4 \quad [x=-2]$$

$$110) |7-2x|=3 \quad [x_1=2; x_2=5]$$

$$111) |x-1|+|x+2|=2x+1 \quad [x \geq 1]$$

$$112) |x+1|+|x-4|=2x+1 \quad [x=2]$$

$$113) |x+1|=x-1 \quad [\text{impossibile}]$$

$$114) |x^2-4|=x+2 \quad [x_1=-2; x_2=1; x_3=3]$$

$$115) |x^2+4x+3|=3 \quad [x_1=-4; x_2=0]$$

$$116) |x^2-4x+3|=-x+3 \quad [x_1=0; x_2=2; x_3=3]$$

$$117) |x^2-4x+1|=x+1 \quad [x_1=0; x_2=1; x_3=2; x_4=5]$$

$$118) \left| \frac{1}{2}x^2 + 3x + \frac{5}{2} \right| = \frac{1}{2}x + \frac{5}{2} \quad [x_1=-5; x_2=-2; x_3=0]$$

$$119) \left| 2x^2 - 7x \right| = -\frac{1}{2}x^2 + x + \frac{9}{2} \quad [x_1 = \frac{8-\sqrt{109}}{5}; x_2=1; x_3=3; x_4 = \frac{8+\sqrt{109}}{5}]$$

$$120) \left| x^2 - 2x - 8 \right| = \frac{1}{6}x^2 - \frac{1}{3}x + \frac{9}{2} \quad [x_1=-3; x_2=-1; x_3=3; x_4=5]$$

$$121) \left| x^2 + 4x \right| = x + 6 \quad [x_1 = \frac{-3-\sqrt{33}}{2}; x_2=-3; x_3=-2; x_4 = \frac{-3+\sqrt{33}}{2}]$$

$$122) \left| x^2 + 4x \right| = x \quad [x_1=0]$$

DISEQUAZIONI CON I VALORI ASSOLUTI

$$123) |x-3| < 3x+1 \quad [x > 1/2]$$

$$124) 2x-|3x-1| \leq x-1 \quad [x \leq 0; x \geq 1]$$

$$125) |3x-6| > 0 \quad [x \neq 2]$$

$$126) |5-x| \leq 0 \quad [x=5]$$

$$127) |x+2| > 3 \quad [x < -5; x > 1]$$

$$128) |2x-3| < -2 \quad [\text{impossibile}]$$

$$129) |5x-10| < 5 \quad [x < 1]$$

$$130) |x^2-3x-10| > -1 \quad [\forall x \in \mathbb{R}]$$

$$131) |x^2-4| \geq 3x \quad [x \leq 1; x \geq 4]$$

$$132) |9-x^2| + |2x| < -2 \quad [\text{impossibile}]$$

$$133) |9-x^2| + |2x| \geq -2 \quad [\forall x \in \mathbb{R}]$$

$$134) |9-x^2| + |2x| \geq 3 \quad [\forall x \in \mathbb{R}]$$

$$135) |x+7| > 4 \quad [x < -11; x > -11]$$

$$136) |7-2x| > 1 \quad [x < 3; x > 4]$$

$$137) |2x-5| \leq x+4 \quad [1/3 \leq x \leq 9]$$

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| 138) | $3x + x+4 < -4$ | $[x < -2]$ |
| 139) | $ 7-2x < 3$ | $[2 < x < 5]$ |
| 140) | $ -x+2 + 2x \geq 3 - x+3 $ | $[x \geq -1]$ |
| 141) | $ x+1 = x-1$ | $[\forall x \in \mathbb{R}]$ |
| 142) | $ x > x^2$ | $[-1 < x < 1, x \neq 0]$ |
| 143) | $ x \geq x^2$ | $[-1 \leq x \leq 1]$ |
| 144) | $ x+3 > -1$ | $[\forall x \in \mathbb{R}]$ |
| 145) | $ 2x-3 < -3$ | [impossibile] |
| 146) | $ x^2-4 > x+2$ | $[x < 1, x > 3, x \neq -2]$ |
| 147) | $ x^2+4x+3 < 3$ | $[-4 < x < 0]$ |
| 148) | $ x^2-4x+3 \leq -x+3$ | $[x_1=0; x_2=2; x_3=3]$ |
| 149) | $ x^2-4x+1 < x+1$ | $[0 < x < 1; 2 < x < 5]$ |
| 150) | $\left \frac{1}{2}x^2 + 3x + \frac{5}{2} \right > \frac{1}{2}x + \frac{5}{2}$ | $[x < -2; x > 0; x \neq -5]$ |
| 151) | $\left 2x^2 - 7x \right < -\frac{1}{2}x^2 + x + \frac{9}{2}$ | $\left[\frac{8-\sqrt{109}}{5} < x < 1; 3 < x < \frac{8+\sqrt{109}}{5} \right]$ |
| 152) | $\left x^2 - 2x - 8 \right > \frac{1}{6}x^2 - \frac{1}{3}x + \frac{9}{2}$ | $[x < -3; -1 < x < 3; x > 5]$ |
| 153) | $ x^2 + 4x > x + 6$ | $\left[x < \frac{-3-\sqrt{33}}{2}; -3 < x < -2; x > \frac{-3+\sqrt{33}}{2} \right]$ |
| 154) | $ x^2 + 4x \leq x$ | $[x=0]$ |
| 155) | $ x^2 + 4x > x$ | $[x \neq 0]$ |

EQUAZIONI IRRAZIONALI

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| 156) | $\sqrt{x^2 - 1} = x$ | [impossibile] |
| 157) | $x - 3 = \sqrt{2x - 6}$ | $[x_1=3; x_2=5]$ |
| 158) | $\sqrt{x+6} - \sqrt{x-1} = 1$ | $[x=10]$ |
| 159) | $\sqrt{x^2 - 3x + 1} = x$ | [impossibile] |
| 160) | $\sqrt{4x - 3} - x = -2$ | $[x=7]$ |
| 161) | $\sqrt{2x-1} - x = -\sqrt{x-1}$ | $[x_1=1; x_2=5]$ |
| 162) | $x = \sqrt{x+1} + 1$ | $[x=3]$ |
| 163) | $\sqrt{x^2 - x + 2} = x$ | $[x=2]$ |
| 164) | $2x - \sqrt{3x^2 - 7x - 1} = 1$ | [impossibile] |
| 165) | $x - 2 = \sqrt{x^2 - x}$ | [impossibile] |
| 166) | $x = \sqrt{-2x - 2} - 1$ | $[x=-1]$ |
| 167) | $x = \sqrt{x^2 + x}$ | $[x=0]$ |
| 168) | $x + \sqrt{x+1} = 1$ | $[x=0]$ |
| 169) | $\sqrt{3x^2 + x} = 2x$ | $[x_1=0; x_2=1]$ |
| 170) | $\sqrt{5x^2 - 12x + 3} = 2x$ | $[x=3]$ |
| 171) | $\sqrt{6x+10} - x = 3$ | $[x_1=1; x_2=-1]$ |
| 172) | $\sqrt{2x-1} = x$ | [impossibile] |
| 173) | $3x - \sqrt{5x^2 - 2x} = 1$ | $\left[x = \frac{1}{2} \right]$ |
| 174) | $x - 5 = \sqrt{x^2 + 25}$ | [impossibile] |
| 175) | $5 - x = \sqrt{x^2 + 25}$ | $[x=0]$ |
| 176) | $3x = \sqrt{8x^2 - 7x + 2}$ | $[x_1=1; x_2=4]$ |
| 177) | $x = \sqrt{(x-8)(x-2)} + 4$ | [impossibile] |
| 178) | $x - 2\sqrt{x+3} = -4$ | $[x=-2]$ |
| 179) | $2\sqrt{x-2} = x$ | [impossibile] |
| 180) | $x = \sqrt{5x^2 - 12x + 6}$ | [impossibile] |
| 181) | $\sqrt{2-7x} + x = 2$ | $[x_1=-1; x_2=-2]$ |
| 182) | $\sqrt{x+4} = \sqrt{x-1} + 1$ | $[x=5]$ |
| 183) | $\sqrt{4+x} = \sqrt{12+x} - 2$ | $[x=-3]$ |

- 184) $\sqrt{5-x} = \sqrt{3+x} + x - 1$ [x=1]
 185) $\sqrt{6+x} - \sqrt{x-2} = 2$ [x=3]
 186) $\sqrt{25-x} - \sqrt{x+16} = 1$ [x=0]
 187) $\sqrt{2x+1} - \sqrt{x-3} = 2$ [x₁=4; x₂=12]
 188) $\sqrt{3x+4} = 1 + \sqrt{13-x}$ [x=4]
 189) $\sqrt{3x+4} = \sqrt{13-x} - 1$ [x = $\frac{3}{4}$]
 190) $\sqrt{3x+4} = 1 - \sqrt{13-x}$ [impossibile]
 191) $\sqrt{x-3} = \sqrt{2x+3} - 3$ [x₁=3; x₂=39]
 192) $\sqrt{x^2-1} = \sqrt{1-x}$ [x₁=1; x₂=-2]
 193) $\sqrt{x} = \sqrt{x^2-72}$ [x=9]
 194) $\sqrt{x+1} = \sqrt{x^2-5}$ [x=3]
 195) $\sqrt{x^2-x+2} = \sqrt{x^2+3x}$ [x = $\frac{1}{2}$]
 196) $\sqrt{x-2} = \sqrt{x^2-4}$ [x=2]
 197) $\sqrt{2x+1} = \sqrt{x^2+1}$ [x₁=0; x₂=2]
 198) $\sqrt{5-x^2} = \sqrt{3-x}$ [x₁=-1; x₂=2]
 199) $\sqrt{x^2} = \sqrt{x+12}$ [x₁=-3; x₂=4]
 200) $\sqrt{x^2-209} = \sqrt{x+1}$ [x=15]
 201) $\sqrt{2x+8} = \sqrt{8-x^2}$ [x₁=0; x₂=-2]
 202) $\sqrt{x^2-1} = \sqrt{x+5} - 2$ [x₁=-1, c'è un'altra soluzione non richiesta]
 203) $\sqrt{x^2-4} = \sqrt{x-1} - 1$ [x=2]
 204) $\sqrt{x^2} - \sqrt{x-1} = 3$ [x₁=5]
 205) $x - \sqrt{x^2-8} = \sqrt{x+1}$ [x=3]
 206) $\sqrt{2-x} = \sqrt{x+11} + \sqrt{8+x}$ [x=-7]
 207) $\sqrt{x-1} = \sqrt{x+3} - \sqrt{5-x}$ [x₁=1; x₂= $\frac{21}{5}$]
 208) $\sqrt{x+2} = \sqrt{2x+5} - \sqrt{3-x}$ [x=2]
 209) $\sqrt{x+2} = \sqrt{5+x} - \sqrt{2x+3}$ [x=-1]

DISEQUAZIONI IRRAZIONALI

- 210) $\sqrt{2x+5} > x+1$ [$-\frac{5}{2} \leq x < 2$]
 211) $\sqrt{x^2-2x} \leq 0$ [x₁=0; x₂=2]
 212) $\sqrt{17-8x} > x-3$ [x ≤ 17/8]
 213) $\sqrt{2-x} < x$ [1 < x < 2]
 214) $\sqrt{\frac{x-1}{2x}} \geq 0$ [x < 0; x ≥ 1]
 215) $\sqrt{x^2-x} > 2x+2$ [$x < \frac{-9 + \sqrt{33}}{6}$]
 216) $\sqrt[3]{4x-4} > x-1$ [-1 < x < 1; x > 3]
 217) $\sqrt{\frac{x+3}{x^2-1}} < 0$ [impossibile]
 218) $\sqrt[4]{5x^2-6} < x$ [$\sqrt{\frac{6}{5}} < x < \sqrt{2}$; x > $\sqrt{3}$]
 219) $\sqrt{x-1} \geq -2$ [∀x ∈ ℝ]

ESERCIZI SULLE DISEQUAZIONI TRATTI DAI COMPITI DI MATEMATICA DI BASE - UNIVERSITA' DI UDINE

- 220) $\sqrt{1-x} > |1+3x|$ [-7/9 < x < 0]
 221) $|x+2| < 1+|x+1|$ [x < -1]
 222) $|1+x| = 1-|x|$ [-1 ≤ x ≤ 0]

$$223) \frac{x}{\sqrt{x+1}} + \frac{\sqrt{x}}{2} = 1$$

$$[x=1]$$

$$224) |x^2 - 4| \leq 2x + 4$$

$$[x=-2, 0 \leq x \leq 4]$$

$$225) \sqrt{2x-1} + \sqrt{x} = 2$$

$$[x=1]$$

$$226) |x^2 - 1| \leq 5x^2 - 2x$$

$$\left[x < \frac{1-\sqrt{7}}{6}; x > \frac{1+\sqrt{7}}{6} \right]$$

$$227) \sqrt{|x-1|+1} \geq \frac{x}{2}$$

$$[x \leq 4]$$

$$228) |x^2 + 2x - 3| \leq 2x + 6$$

$$[x=-3; 1 \leq x \leq 3]$$

$$229) \frac{2\sqrt{x+1}-1}{\sqrt{x+1}+1} + 1 \leq \sqrt{x+1}$$

$$[x \geq 3]$$