Risolvere le seguenti disequazioni

1 $\dfrac{3(2x-1)}{1+x} > 0.$ $\left[x < -1 \vee x > \dfrac{1}{2}\right]$

2. $(x-8)(2-4x) \leq 0.$ $\left[x \leq \dfrac{1}{2} \vee x \geq 8\right]$

3. $\dfrac{x-8}{2-4x} \leq 0.$ $\left[x < \dfrac{1}{2} \vee x \geq 8\right]$

4. $x(x-1)(6+2x)(4x-8) \leq 0.$ $[-3 \leq x \leq 0 \vee 1 \leq x \leq 2]$

5. $\dfrac{x(x-1)}{(6+2x)(4x-8)} \leq 0.$ $[-3 < x \leq 0 \vee 1 \leq x < 2]$

6. $\dfrac{(x+1)(x+3)(x-6)}{x^2} < 0.$ $[x < -3 \vee -1 < x < 0 \vee 0 < x < 6]$

7. $\dfrac{5x-1}{x-3} \geq 1.$ $\left[x \leq -\dfrac{1}{2} \vee x > 3\right]$

8. $\dfrac{2x-2}{x} - 4 \leq 0.$ $[x \leq -1 \vee x > 0]$

Risolvere i seguenti sistemi di equazioni in due incognite, fornendo anche la rappresentazione grafica

1. $\begin{cases} x+2y &= 3 \\ 3x-2y &= 1 \end{cases}.$ $[(1,1)]$

2. $\begin{cases} 7x-3y &= 8 \\ 3x-3y &= 4 \end{cases}.$ $\left[\left(1, -\dfrac{1}{3}\right)\right]$

3. $\begin{cases} x-2y &= -1 \\ x-3y &= 4 \end{cases}.$ $[(-11,-5)]$

4. $\begin{cases} 3x-y &= 9 \\ 4x+3y &= -1 \end{cases}.$ $[(2,-3)]$

5. $\begin{cases} 6x+5y &= 3 \\ 9x+7y &= 5 \end{cases}.$ $\left[\left(\dfrac{4}{3}, -1\right)\right]$

Risolvere i seguenti esercizi:

1. $\dfrac{x^2 - 5x + 6}{x^2 - 3x + 10} > 0$
2. $\dfrac{x^2 + 10x + 16}{x - 1} > 0$
3. $\dfrac{1}{(x^2+1)^2} - \dfrac{4}{(x^2+16)^2} > 0$
4. $x + 3 > \sqrt{3x^2 + 10x} + 3$
5. $2x + 1\sqrt[4]{16x^4 + 32x^3 + 24x^2}$
6. $\sqrt{26x^3 + 7x^2 - 9x + 2} \geq -x^2$
7. $|x| + |-x| \leq 2$
8. $\sqrt[3]{x^3 - x} \geq |x|$
9. $\sqrt{-x} + |x| \geq 2$

1. $x - 1 > 0$ (R. $x > 1$)

2. $-x + \quad > 0$ (R. $x < 2$)

3. $2x \geq 8$ (R. $x \geq 4$)

4. $x^2 - 7x + 12 > 0$ (R. $(-\infty, 3) \cup (4, +\infty)$)

5. $x^8 + 12 > 0$ (R. $(-\infty, +\infty)$)

6. $-2x^2 - 3x + \quad > 0$ (R. $(-\infty, 3) \cup (4, +\infty)$)

7. $(x - 2)(x - 3) < 0$ (R. $(2, 3)$)

8. $x^2 - 7x + 12 > 0$ (R. $(-\infty, 3) \cup (4, +\infty)$)

9. $-2x^2 - 3x + \quad > 0$ (R. $(-2, \frac{1}{2})$)

10. $-x^2 + 2x - 6 > 0$ (R. mai

11. $x^2 - 5 \leq 0$ (R. $[-\sqrt{5}, \sqrt{5}]$)

12. $x\,(x + 3)\,(x^2 - 4) > 0$ (R. $x < -3$, $-2 < x < 0$, $x > 2$)

13. $3x^3 + 2x^2 - 7x + \quad < 0$ (R. $(-\infty, -2) \cup (\frac{1}{3}, 1)$)

14. $(x^2-5x+6)\,(x^2-9)\ \geq\ 0$ (R. $(-\infty,-3]\cup[2,+\infty)$)

15. $2x\,(x^2-1)\,(-x^2+3x-4)\ >\ 0$ (R. $(-\infty,-1)\cup(0,1)$)

16. $(x-2)\,(x-\frac{1}{3})\,(3x^2+3)\ >\ 0$ (R. $(-\infty,\frac{1}{3})\cup(2,+\infty)$)

17. $\frac{x+5}{x+2}\ >\ 0$ (R. $(-\infty,-5)\cup(-2,+\infty)$)

18. $\frac{x+5}{x+2}\ >\ 1$ (R. $x>-2$)

19. $\frac{x^2-6x-7}{-x^2+10x-16}\ \geq\ 0$ (R. $[-1,2)\cup[7,8)$)

20. $\frac{x^2-6x-7}{-x^2+10x-16}\ \leq\ 0$ (R. $(-\infty,-1]\cup(2,7]\cup(8,+\infty)$)

21. $\frac{x+1}{x^2-4}\ \leq\ 0$ (R. $x<-2$, $-1\leq x<2$)

22. $log_2(x+1)\ <\ 0$ (R. $x<0$)

23. $log_2(x+6)\ >\ 3$ (R. $(2,+\infty)$)

24. $log_2(x^2+7)\ <\ 3$ (R. $(-8,-7)\cup(0,1)$)

25. $ln(x-2)-ln(x+5)\ >\ 0$ (R. mai)

26. $ln(x+7)-ln(3-x)\ <\ ln(2x+5)$ (R. $(-2,2)$)

27. $2^{x+5}\ <\ 1$ (R. $x<-5$)

28. $e^{x^2+1} > 1$ (R. $sempre$)

29. $2^{x+1} > 4^{-x}$ (R. $(-\frac{1}{3}, +\infty)$)

30. $4^{\frac{1}{x}} > 2^x$ (R. $(0, \sqrt{2})$)

31. $e^{4x^2+4x-2} > e^{3x^2+7x-4}$ (R. $x < 1$, $x > 2$)