

ALGEBRA: ESERCIZI PER IL RECUPERO

1. $(x+2)^2 + (1-2x)^2 = 7 - 3x$ $-1; \frac{2}{5}$
2. $(x-2)^2 - (x-1)(x-4) = x(x+3)$ $0; -2$
3. $\frac{x-1}{x+1} + \frac{x+1}{x-1} = \frac{4(2x-1)}{x^2-1}$ 3
4. $3x^4 - 2x^2 - 1 = 0$ ± 1
5. $x^2 - 6x + 8 > 0$ $x < 2 \cup x > 4$
6. $2x^2 + 7 < 0$ *imp.*
7. $x^2 - 4x + 4 > 0$ $x \neq 2$
8. $(5x-1)(5x+1) = 5\left(x - \frac{1}{5}\right)$ $0; \frac{1}{5}$
9. $5x - \left(5 + \frac{x}{2}\right)^2 = -30$ $\pm 2\sqrt{5}$
10. $(x-5)(x+5) = (1-x)(1+x) + 2(x-10)$ $\frac{1 \pm \sqrt{13}}{2}$
11. $\frac{1}{3x} \left(\frac{2x}{x+1} - x \right) = 0$ 1
12. $x^4 + 12 = 7x^2$ $\pm 2; \pm \sqrt{3}$
13. $8x^3 + 64 = 0$ -2
14. $x^4 - 3x^2 - 4 \geq 0$ $x \leq -2 \vee x \geq 2$
15. $x(3x-10) > 5(2x-5)$ $x < \frac{5}{3} \vee x > 5$
16. $(2x-1)^2 + 3(x^2+1) - 2x(4-x) > 0$
17. $-x - \frac{(1-x)(1+x)}{3} \leq x + \frac{x^2}{6} + \frac{11}{6}$ $-1 \leq x \leq 13$
18. $\frac{x^2-2x}{1-4x^2} < \frac{1}{1-2x} - \frac{1}{2x+1}$ $x < -\frac{1}{2} \vee 0 < x < \frac{1}{2} \vee x > 6$
19. $1 + \frac{4-x}{2x-4} + \frac{1}{x-3} > \frac{x+1}{x^2-x-2}$ $x < 1 \vee x > 3$
20. $\begin{cases} 4(x+2)+1 < 5(x+1)+3x-15 \\ 3x^2+2(2x+1) < 0 \end{cases}$ *imp.*

21. $\frac{1}{x+1} + \frac{1}{1-x} + \frac{1}{(x+1)^2} + \frac{1}{(x-1)^2} = \frac{1}{x^2-1}$

$$\pm\sqrt{5}$$

22. $12x^3 - 13x^2 - 13x + 12 = 0$

$$-1; \frac{3}{4}; \frac{4}{3}$$

23.
$$\begin{cases} \frac{5}{4}x - 2 < \frac{x+1}{2} \\ \frac{x(x-2)}{2} + 6 < \frac{5x}{2} \end{cases}$$

$$3 < x < \frac{10}{3}$$

24. $\sqrt{6x-x^2} < 3-2x$

$$0 \leq x < \frac{3}{5}$$