

**ECUACIONES RACIONALES**

1.  $\frac{3}{x+1} = \frac{x}{x-1} - 1$

2.  $\frac{x+2}{x-1} - \frac{x+3}{x+1} = \frac{2x+2}{x^2-1}$

3.  $\frac{2}{x+1} + \frac{3x-3}{x^2-1} = \frac{2}{x-1} + \frac{7}{x+1}$

4.  $\frac{5}{x-1} - \frac{3}{x+4} - \frac{3}{x^2+3x-4} = \frac{5}{x-1}$

5.  $\frac{15}{x-2} - \frac{12x+6}{x^2-4} = \frac{18}{x+2}$

6.  $\frac{1}{x-a} + \frac{1}{x+a} = \frac{1}{x^2-a^2}$

7.  $\frac{1 + \frac{x+1}{x-1}}{2 - \frac{x-1}{x+1}} = 2$

8.  $\frac{x-1}{x+1} - \frac{3+x}{x} = 2$

9.  $\frac{x-1}{x+1} - \frac{3+x}{x-1} = 2$

10.  $\frac{3}{x + \frac{1}{2 + \frac{x+1}{x-2}}} = \frac{1}{x}$

11.  $\frac{\frac{x-3}{2} - \frac{x-3}{4}}{x - \frac{1}{1 - \frac{x-1}{x+1}}} = -\frac{1}{x}$

**Soluciones.**

1.  $x=2$

2.  $x=3$

3.  $x=0$

4.  $x=0$

5.  $x=4$

6.  $x=1/2$

7.  $x=3$

8.  $x=3$   $x=-1/2$

9.  $x=-3$   $x=0$

10.  $x=1/2$   $x=3/2$

11.  $x=1$   $x=2$

**ECUACIONES IRRACIONALES**

$$\begin{array}{lll}
 1. x + \sqrt{x} = 30 & 2. \sqrt{x} + 1 = \sqrt{x+9} & 3. \sqrt{7-3x} - x = 7 \\
 4. \sqrt{x+4} = 3 - \sqrt{x-1} & 5. 5\sqrt{x} + 3 = 2x & 6. 3\sqrt{6x+1} - 5 = 2x \\
 7. \sqrt{4x+5} - \sqrt{3x+1} = 1 & 8. \sqrt{2x-1} + \sqrt{x+4} = 6 & 9. 1 + \sqrt{x+1} = \frac{x}{3} \\
 10. \sqrt{x^3} - 2\sqrt{x} = \sqrt{x} & 11. \sqrt{x-3} + \sqrt{x+4} = \sqrt{4x+1} & \\
 12. 2\sqrt{x+4} = \sqrt{5x+4} & 13. \sqrt{x^2+3x+7} = 5 & 14. 3 - \sqrt{x} = x + 1 \\
 15. 2\sqrt{2x-1} = \sqrt{6x-5} + \sqrt{2x-9} & 16. \sqrt{2x+5} + 6 = 3x + 3 & \\
 17. \sqrt{3x+10} = 1 + \sqrt{3x+3} & 18. \sqrt{3x-2} - 4 = 0 & 19. \sqrt{2x+1} = x - 1 \\
 20. \sqrt{2x-1} + \sqrt{2x+1} = \frac{1}{\sqrt{2x-1}} & 21. \frac{21}{\sqrt{6x+1}} - \sqrt{6x+1} = 2\sqrt{3x} & \\
 22. \frac{3}{\sqrt{x}} = \frac{6}{\sqrt{3x+4}} & 23. \sqrt{2} + \sqrt{\frac{2^3}{x}} = \sqrt{2x} & \\
 24. \sqrt{x+6} + \sqrt{x+11} = \sqrt{5-10x} & 25. \sqrt{9\sqrt{15-x}} = 6\sqrt{2x+3} & 
 \end{array}$$

**Soluciones:**

$$\begin{array}{llll}
 1. x=25, x=36; & 2. x=16; & 3. x=-3, x=-14; & 4. x=13/9; \\
 5. x=9, x=1/4; & 6. x=8, x=1/2; & 7. x=5, x=1; & 8. x=5, x=221; \\
 9. x=15, x=0; & 10. x=0, x=3; & 11. x=12; & 12. x=12; \\
 13. x=3, x=-6; & 14. x=1, x=4; & 15. x=5; & 16. x=2/9, x=2; \\
 17. x=2; & 18. x=6; & 19. x=4, x=0; & 20. x=5/8; \\
 21. x=4/3; & 22. x=4; & 23. x=4, x=1; & 24. x=-2, x=3/7; \\
 25. x=-1 & & & 
 \end{array}$$

**ECUACIONES BICUADRADAS Y BICÚBICAS**

1.  $x^4 - 5x^2 + 4 = 0$

2.  $x^4 + 2x^2 - 3 = 0$

3.  $x^6 - 9x^3 + 8 = 0$

4.  $x^6 - 26x^3 - 27 = 0$

5.  $6x^4 + 2x^2 - 8 = 0$

6.  $x^4 - 4x^2 = 0$

7.  $4x^4 - 17x^2 + 4 = 0$

8.  $9x^4 - 3x^2 + 4 = 0$

9.  $x^4 - 6x^2 - 27 = 0$

10.  $x^6 + 7x^3 - 8 = 0$

11.  $x^4 - 2x^2 - 8 = 0$

12.  $x^6 + 28x^3 + 27 = 0$

**Soluciones:**

1.  $x_1 = 1, x_2 = 2;$

2.  $x_1 = 1;$

3.  $x = 2, x = 1;$

4.  $x = -1, x = 3;$

5.  $x_1 = 1;$

6.  $x = 0, x_2 = 2;$

7.  $x_1 = 2, x_2 = 1/2$

8.  $x_1 = 1/3, x_2 = 2$

9.  $x_1 = 3$

10.  $x = 1, x = -2$

11.  $x_1 = 2$

12.  $x = -1, x = -3$