

## Ecuaciones Irracionales

1. Resuelve la ecuación:

- |                                  |                                    |                                    |                                    |                                    |
|----------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| 1. $\sqrt{3x-8} - 2 = 0$         | 2. $\sqrt{4x-8} - 2 = 0$           | 3. $\sqrt{2x+2} - 2 = 0$           | 4. $\sqrt{4x+3} - 2 = 0$           | 5. $2 - \sqrt{3x+2} = 0$           |
| 6. $2 - \sqrt{2x+5} = 0$         | 7. $\sqrt{3x+10} - 1 = 0$          | 8. $4 - \sqrt{4x+17} = 0$          | 9. $3 - \sqrt{3x+12} = 0$          | 10. $\sqrt{3x+10} - 2 = 0$         |
| 11. $4 - \sqrt{12x+7} = 0$       | 12. $\sqrt{3x+13} - 3 = 0$         | 13. $4 - \sqrt{2x+15} = 0$         | 14. $\sqrt{2x+10} - 2 = 0$         | 15. $\sqrt{4x+103} = 10$           |
| 16. $5 - \sqrt{2x+23} = 0$       | 17. $\sqrt{4x+22} - 5 = 0$         | 18. $\sqrt{2x+22} - 5 = 0$         | 19. $\sqrt{3x+23} - 5 = 0$         | 20. $4 - \sqrt{4x+28} = 0$         |
| 21. $\sqrt{2} - \sqrt{4x+3} = 0$ | 22. $\sqrt{3x+71} - 5\sqrt{3} = 0$ | 23. $\sqrt{2x+31} - 4\sqrt{2} = 0$ | 24. $4\sqrt{2} - \sqrt{6x+35} = 0$ | 25. $5\sqrt{2} - \sqrt{4x+53} = 0$ |

2. Resuelve la ecuación:

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|------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|
| 1. $1 - \sqrt{2x^2-1} = 0$   | 2. $\sqrt{4x^2+24} = 5$      | 3. $\sqrt{3x^2+22} = 5$      | 4. $\sqrt{4x^2-3} - 1 = 0$   | 5. $4 - \sqrt{x^2+15} = 0$    |
| 6. $\sqrt{x^2+21} - 5 = 0$   | 7. $\sqrt{4x^2-5} - 2 = 0$   | 8. $\sqrt{4x^2+7} - 4 = 0$   | 9. $\sqrt{x^2+24} - 5 = 0$   | 10. $\sqrt{2x^2+2} - 2 = 0$   |
| 11. $\sqrt{2x^2+7} - 3 = 0$  | 12. $\sqrt{12x^2+33} = 6$    | 13. $2 - \sqrt{4x^2-12} = 0$ | 14. $2 - \sqrt{16x^2-5} = 0$ | 15. $\sqrt{18x^2+7} - 3 = 0$  |
| 16. $\sqrt{16x^2+7} - 4 = 0$ | 17. $5 - \sqrt{3x^2+13} = 0$ | 18. $\sqrt{4x^2+12} - 4 = 0$ | 19. $5 - \sqrt{2x^2+17} = 0$ | 20. $\sqrt{18x^2+4} - 6 = 0$  |
| 21. $\sqrt{4x^2+15} - 4 = 0$ | 22. $\sqrt{2x^2-23} - 3 = 0$ | 23. $\sqrt{4x^2+35} - 6 = 0$ | 24. $\sqrt{9x^2+24} - 5 = 0$ | 25. $\sqrt{16x^2+16} - 5 = 0$ |

3. Resuelve la ecuación:

- |                                    |                                  |                                     |                                      |                                      |
|------------------------------------|----------------------------------|-------------------------------------|--------------------------------------|--------------------------------------|
| 1. $2 - \sqrt{x^3+5} = 0$          | 2. $\sqrt{x^3+8} - 3 = 0$        | 3. $\sqrt{x^3+3} - 2 = 0$           | 4. $\sqrt{3x^3-77} = 2$              | 5. $\sqrt{3x^3-20} = 2$              |
| 6. $\sqrt{2x^3-1} - 1 = 0$         | 7. $\sqrt{2x^3+28} = 2$          | 8. $\sqrt{x^3+17} - 3 = 0$          | 9. $\sqrt{2x^3+3} - 1 = 0$           | 10. $\sqrt{8x^3+3} - 2 = 0$          |
| 11. $\sqrt{2x^3+2} - 2 = 0$        | 12. $2 - \sqrt{3x^3+7} = 0$      | 13. $3 - \sqrt{3x^3+6} = 0$         | 14. $\sqrt{27x^3+82} = 9$            | 15. $\sqrt{2x^3-12} - 2 = 0$         |
| 16. $\sqrt{3x^3-23} - 1 = 0$       | 17. $\sqrt{3x^3+12} - 3 = 0$     | 18. $\sqrt{2x^3+20} - 2 = 0$        | 19. $\sqrt{3x^3+90} - 3 = 0$         | 20. $\sqrt{3x^3+33} - 3 = 0$         |
| 21. $\sqrt{8x^3+9} - \sqrt{8} = 0$ | 22. $\sqrt{8x^3+33} = 2\sqrt{8}$ | 23. $\sqrt{24x^3+5} - \sqrt{8} = 0$ | 24. $\sqrt{24x^3+11} - \sqrt{8} = 0$ | 25. $3\sqrt{8} - \sqrt{8x^3+71} = 0$ |

4. Resuelve la ecuación:

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|--|--|--|--|--|
| 1. $\sqrt[3]{x+12} - 2 = 0$            | 2. $\sqrt[3]{2x+2} - 1 = 0$            | 3. $\sqrt[3]{4x+4} - 2 = 0$              | 4. $\sqrt[3]{2x+7} - 2 = 0$              | 5. $\sqrt[3]{x+26} - 3 = 0$              |
| 6. $3 - \sqrt[3]{x+25} = 0$            | 7. $\sqrt[3]{3x+7} - 2 = 0$            | 8. $2 - \sqrt[3]{3x+5} = 0$              | 9. $1 - \sqrt[3]{3x+13} = 0$             | 10. $\sqrt[3]{4x+17} - 1 = 0$            |
| 11. $\sqrt[3]{2x+11} - 2 = 0$          | 12. $\sqrt[3]{2x+31} - 3 = 0$          | 13. $\sqrt[3]{3x+10} - 2 = 0$            | 14. $2 - \sqrt[3]{3x+12} = 0$            | 15. $\sqrt[3]{4x+31} - 3 = 0$            |
| 16. $3 - \sqrt[3]{2x+28} = 0$          | 17. $3 - \sqrt[3]{4x+35} = 0$          | 18. $3 - \sqrt[3]{4x+24} = 0$            | 19. $\sqrt[3]{2x+25} - 3 = 0$            | 20. $\sqrt[3]{4x+43} - 3 = 0$            |
| 21. $\sqrt[3]{3x+7} - \sqrt[3]{3} = 0$ | 22. $\sqrt[3]{4x+3} - \sqrt[3]{2} = 0$ | 23. $\sqrt[3]{6x+13} - 2\sqrt[3]{2} = 0$ | 24. $3\sqrt[3]{3} - \sqrt[3]{6x+73} = 0$ | 25. $\sqrt[3]{3x+22} - 2\sqrt[3]{3} = 0$ |

5. Resuelve la ecuación:

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|--|--------------------------------------|--|---|---|
| 1. $\sqrt[3]{16x^2+18} = 3$              | 2. $\sqrt[3]{9x^2-13} = \sqrt[3]{3}$ | 3. $\sqrt[3]{4x^2-8} - 1 = 0$            | 4. $3 - \sqrt[3]{4x^2-9} = 0$             | 5. $\sqrt[3]{2x^2-5} - 3 = 0$             |
| 6. $2 - \sqrt[3]{9x^2-8} = 0$            | 7. $\sqrt[3]{4x^2+7} - 2 = 0$        | 8. $2 - \sqrt[3]{9x^2+7} = 0$            | 9. $2 - \sqrt[3]{4x^2+7} = 0$             | 10. $2 - \sqrt[3]{9x^2+4} = 0$            |
| 11. $\sqrt[3]{x^2+26} - 3 = 0$           | 12. $1 - \sqrt[3]{3x^2-11} = 0$      | 13. $\sqrt[3]{4x^2+11} - 3 = 0$          | 14. $3 - \sqrt[3]{3x^2+15} = 0$           | 15. $\sqrt[3]{2x^2+19} - 3 = 0$           |
| 16. $\sqrt[3]{16x^2+7} - 2 = 0$          | 17. $\sqrt[3]{2x^2-24} - 2 = 0$      | 18. $\sqrt[3]{3x^2+24} - 3 = 0$          | 19. $3 - \sqrt[3]{2x^2+25} = 0$           | 20. $3 - \sqrt[3]{9x^2+23} = 0$           |
| 21. $\sqrt[3]{4x^2-7} - \sqrt[3]{2} = 0$ | 22. $3 - \sqrt[3]{16x^2+18} = 0$     | 23. $\sqrt[3]{9x^2+5} - \sqrt[3]{9} = 0$ | 24. $\sqrt[3]{18x^2+1} - \sqrt[3]{9} = 0$ | 25. $2\sqrt[3]{3} - \sqrt[3]{9x^2+8} = 0$ |

6. Resuelve la ecuación:

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|--|---------------------------------|---------------------------------|--|----------------------------------|
| 1. $\sqrt[3]{2x^3-46} = 2$             | 2. $\sqrt[3]{24x^3+5} = 2$      | 3. $\sqrt[3]{2x^3+25} = 3$      | 4. $\sqrt[3]{8x^3+215} = 6$              | 5. $\sqrt[3]{2x^3-1} - 1 = 0$    |
| 6. $\sqrt[3]{x^3-26} - 1 = 0$          | 7. $\sqrt[3]{3x^3-2} - 1 = 0$   | 8. $\sqrt[3]{54x^3+218} = 6$    | 9. $\sqrt[3]{27x^3+215} = 6$             | 10. $\sqrt[3]{24x^3+213} = 6$    |
| 11. $\sqrt[3]{8x^3+31} = 2\sqrt[3]{4}$ | 12. $\sqrt[3]{x^3+28} - 3 = 0$  | 13. $2 - \sqrt[3]{2x^3+6} = 0$  | 14. $\sqrt[3]{2x^3-15} - 1 = 0$          | 15. $2 - \sqrt[3]{3x^3+11} = 0$  |
| 16. $1 - \sqrt[3]{2x^3+17} = 0$        | 17. $3 - \sqrt[3]{2x^3+81} = 0$ | 18. $\sqrt[3]{2x^3+55} - 1 = 0$ | 19. $3 - \sqrt[3]{2x^3-27} = 0$          | 20. $\sqrt[3]{2x^3+43} - 3 = 0$  |
| 21. $\sqrt[3]{2x^3+29} - 3 = 0$        | 22. $\sqrt[3]{3x^3+32} - 2 = 0$ | 23. $\sqrt[3]{3x^3+30} - 3 = 0$ | 24. $\sqrt[3]{8x^3+3} - \sqrt[3]{4} = 0$ | 25. $2 - \sqrt[3]{24x^3+11} = 0$ |

7. Resuelve la ecuación:

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|----------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|
| 1. $\sqrt{4x+20} = 4\sqrt{3x+4}$ | 2. $3\sqrt{2x+14} = 4\sqrt{2x+7}$ | 3. $4\sqrt{x+10} = 3\sqrt{4x+20}$ | 4. $4\sqrt{x-1} - \sqrt{3x+10} = 0$ |
|----------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|

5. $\sqrt{8x+6} - 3\sqrt{2x-1} = 0$	6. $4\sqrt{2x+5} - \sqrt{x+18} = 0$	7. $3\sqrt{3x+1} - 2\sqrt{x+8} = 0$	8. $4\sqrt{x+6} - 3\sqrt{x+13} = 0$
9. $2\sqrt{2x-3} - \sqrt{3x-2} = 0$	10. $\sqrt{4x+8} - 2\sqrt{4x-4} = 0$	11. $4\sqrt{x+6} - 3\sqrt{4x+4} = 0$	12. $3\sqrt{2x+2} - 2\sqrt{x+8} = 0$
13. $\sqrt{2x+8} - 2\sqrt{4x+9} = 0$	14. $\sqrt{2x+14} - \sqrt{4x+12} = 0$	15. $\sqrt{2x+17} - \sqrt{4x+16} = 0$	16. $3\sqrt{4x-15} - \sqrt{4x-7} = 0$
17. $4\sqrt{2x+1} - \sqrt{8x+28} = 0$	18. $\sqrt{4x+26} - 4\sqrt{6x-7} = 0$	19. $\sqrt{3x+44} - 4\sqrt{9x-9} = 0$	20. $\sqrt{4x+34} - 4\sqrt{2x+3} = 0$
21. $2\sqrt{3x+8} - \sqrt{9x+36} = 0$	22. $2\sqrt{4x+6} - \sqrt{6x+29} = 0$	23. $4\sqrt{2x+5} - \sqrt{3x+22} = 0$	24. $3\sqrt{4x+2} - \sqrt{4x+34} = 0$

8. Resuelve la ecuación:

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

9. Resuelve la ecuación:

1. $\sqrt{3x^2+4} = 2\sqrt{2x^2-4}$	2. $\sqrt{x^2+7} = 2\sqrt{3x^2-23}$	3. $2\sqrt{3x^2-8} = \sqrt{3x^2+4}$	4. $2\sqrt{2x^2+2} = \sqrt{2x^2+14}$
5. $\sqrt{2x^2-1} - \sqrt{3x^2-2} = 0$	6. $\sqrt{x^2+8} - 3\sqrt{2x^2-1} = 0$	7. $4\sqrt{2x^2+7} = 3\sqrt{3x^2+13}$	8. $\sqrt{2x^2+2} - \sqrt{3x^2+1} = 0$
9. $2\sqrt{x^2+3} - \sqrt{x^2+15} = 0$	10. $3\sqrt{2x^2+14} = 4\sqrt{3x^2+6}$	11. $4\sqrt{2x^2-7} - \sqrt{x^2+7} = 0$	12. $2\sqrt{2x^2-1} - \sqrt{3x^2+1} = 0$
13. $\sqrt{x^2+15} - 4\sqrt{2x^2-1} = 0$	14. $4\sqrt{2x^2-7} - \sqrt{x^2+12} = 0$	15. $\sqrt{2x^2+1} - 3\sqrt{2x^2-7} = 0$	16. $\sqrt{x^2+15} - 2\sqrt{2x^2+2} = 0$
17. $3\sqrt{x^2+7} - 4\sqrt{2x^2-9} = 0$	18. $\sqrt{16x^2-4} - \sqrt{8x^2+14} = 0$	19. $\sqrt{2x^2+14} - \sqrt{3x^2+13} = 0$	20. $\sqrt{2x^2-14} - \sqrt{3x^2-23} = 0$
21. $3\sqrt{3x^2+13} - 4\sqrt{x^2+8} = 0$	22. $2\sqrt{3x^2-3} - 3\sqrt{3x^2-8} = 0$	23. $3\sqrt{3x^2-26} - \sqrt{2x^2-9} = 0$	24. $3\sqrt{x^2+15} - 4\sqrt{3x^2+6} = 0$

10. Resuelve la ecuación:

1. $2x = \sqrt{14x-6}$	2. $2x = \sqrt{15x-9}$	3. $6x = \sqrt{9-15x}$	4. $x - \sqrt{8-2x} = 0$	5. $\sqrt{3x-2} - x = 0$
6. $x - \sqrt{8x-2} = 0$	7. $x - \sqrt{4x-3} = 0$	8. $\sqrt{3-2x} - x = 0$	9. $\sqrt{2x+3} - x = 0$	10. $x - \sqrt{2x+3} = 0$
11. $x - \sqrt{3x+4} = 0$	12. $3x - \sqrt{6x-1} = 0$	13. $6x - \sqrt{6-6x} = 0$	14. $3x - \sqrt{3x+6} = 0$	15. $2x - \sqrt{2x+2} = 0$
16. $\sqrt{2x+6} - 2x = 0$	17. $2x - \sqrt{4x+3} = 0$	18. $6x - \sqrt{21x-3} = 0$	19. $2x - \sqrt{10x-6} = 0$	20. $3x - \sqrt{3x+12} = 0$
21. $6x - \sqrt{6x+12} = 0$	22. $2x - \sqrt{10x+6} = 0$	23. $4x - \sqrt{20x+6} = 0$	24. $6x - \sqrt{51x-18} = 0$	25. $6x - \sqrt{42x+18} = 0$

11. Resuelve la ecuación:

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

12. Resuelve la ecuación:

1. $\sqrt{x^2+8} - x = 2$	2. $3x - \sqrt{x^2+3} = 1$	3. $\sqrt{3x^2+1} - x = 3$	4. $\sqrt{2x^2+7} - x = 2$	5. $3x - \sqrt{3x^2+1} = 1$
6. $2x-1 = \sqrt{3x^2-3}$	7. $3x-1 = \sqrt{9x^2-7}$	8. $3x-2 = \sqrt{3x^2-2}$	9. $x+5 = \sqrt{2x^2+14}$	10. $3x - \sqrt{2x^2+8} = 2$
11. $\sqrt{2x^2+1} - 2x = 7$	12. $\sqrt{3x^2-44} - x = 6$	13. $2x+9 = \sqrt{12x^2+9}$	14. $\sqrt{4x^2-8} - 4 = 2x$	15. $\sqrt{3x^2+6} - 5 = 2x$
16. $3x - \sqrt{2x^2-14} = 7$	17. $\sqrt{x^2+12} - x-2 = 0$	18. $\sqrt{4x^2+12} - 1 = 3x$	19. $x - \sqrt{3x^2-8} + 4 = 0$	20. $\sqrt{9x^2-15} - 5 = 3x$
21. $\sqrt{3x^2+6} - x-2 = 0$	22. $\sqrt{x^2+8} - 2x-5 = 0$	23. $\sqrt{2x^2+14} - 7 = 3x$	24. $x - \sqrt{4x^2-15} + 3 = 0$	25. $\sqrt{18x^2+4} - 10 = 3x$

13. Resuelve la ecuación:

1. $\sqrt{2x+10} - \sqrt{x+1} = 2$	2. $\sqrt{4x-4} - \sqrt{4x-7} = 1$	3. $\sqrt{3x-5} + 1 = \sqrt{4x-4}$	4. $\sqrt{2x+3} + 1 = \sqrt{4x+4}$
5. $3 - \sqrt{2x+4} = \sqrt{2x+7}$	6. $\sqrt{3x+14} - 1 = \sqrt{3x+7}$	7. $\sqrt{2x+15} - 2 = \sqrt{2x+3}$	8. $\sqrt{3x+18} - 2 = \sqrt{3x+6}$

9. $\sqrt{3x+14} - 2 = \sqrt{3x+2}$	10. $\sqrt{2x} - \sqrt{2x+8} + 2 = 0$	11. $2\sqrt{3x+1} - \sqrt{4x+5} = 1$	12. $\sqrt{3x+12} - \sqrt{3x+5} = 1$
13. $\sqrt{4x+11} - \sqrt{2x+2} = 2$	14. $\sqrt{3x+13} - \sqrt{2x+7} = 1$	15. $\sqrt{4x+13} - \sqrt{4x-2} = 3$	16. $\sqrt{4x+15} - \sqrt{2x+4} = 2$
17. $\sqrt{3x+19} - \sqrt{3x+4} = 3$	18. $\sqrt{3x+18} - \sqrt{3x+3} = 3$	19. $\sqrt{2x+18} - \sqrt{2x+11} = 1$	20. $2\sqrt{2x+6} - \sqrt{2x+3} = 3$
21. $\sqrt{2x+17} - \sqrt{2x+10} = 1$	22. $3\sqrt{2x+1} - \sqrt{2x+13} = 2$	23. $\sqrt{2x+1} - \sqrt{4x+5} + 2 = 0$	24. $\sqrt{2x+18} - \sqrt{x+5} - 2 = 0$

14. Resuelve la ecuación:

1. $2x+1 = \sqrt{8x^3+1}$	2. $3-x\sqrt{2x-2} = 3x$	3. $3x+1 = \sqrt{6x^3+1}$	4. $3-4x = \sqrt{9-8x^3}$	5. $4-x\sqrt{16x+41} = x$
6. $x\sqrt{7-6x} + 3 = 2x$	7. $x\sqrt{3x-2} + 3x = 2$	8. $\sqrt{9-8x^3} + 2x = 3$	9. $\sqrt{8x^3+9} - 3 = 4x$	10. $x\sqrt{5-2x} - x + 4 = 0$
11. $x\sqrt{4x+5} - x - 2 = 0$	12. $\sqrt{16x^3+9} + 3 = 8x$	13. $8x - x\sqrt{19-27x} = 6$	14. $4x - \sqrt{8x^3+1} - 1 = 0$	15. $2x - \sqrt{8x^3+1} + 1 = 0$
16. $\sqrt{1-3x^3} + 3x + 1 = 0$	17. $5x+1 + \sqrt{1-15x^3} = 0$	18. $4-x\sqrt{72x-23} = 11x$	19. $6-x\sqrt{48x-23} = 11x$	20. $\sqrt{81x^3+1} - 9x + 1 = 0$
21. $\sqrt{1-24x^3} + 6x + 1 = 0$	22. $\sqrt{40-3x^3} + 3x - 2 = 0$	23. $\sqrt{-12x^3-3} + 6x + 3 = 0$	24. $2x+3+x\sqrt{43-18x} = 0$	25. $10x-3-\sqrt{40x^3+9} = 0$

15. Resuelve la ecuación:

1. $6-\sqrt{32-7x^2} = x^2$	2. $7-\sqrt{45-9x^2} = x^2$	3. $2x^2-3 = \sqrt{5x^2+5}$	4. $5-2x^2 = \sqrt{16-7x^2}$	5. $\sqrt{55-6x^2} + 8 = x^2$
6. $\sqrt{40-4x^2} + 7 = x^2$	7. $2x^4-4 = \sqrt{9x^2-20}$	8. $2x^4-\sqrt{21x^2+7} = 4$	9. $3x^3-3 = \sqrt{22x^2-7}$	10. $x^2-\sqrt{6x^2-5} - 2 = 0$
11. $4-\sqrt{15-11x^2} = 2x^2$	12. $2x^2-\sqrt{45-11x^2} = 7$	13. $9-2x^2 = \sqrt{45-11x^2}$	14. $2x^2-1 = \sqrt{21x^2-35}$	15. $8-\sqrt{55-19x^2} = 2x^2$
16. $2x^2-2 = \sqrt{17x^2-32}$	17. $6-2x^2 = \sqrt{35-19x^2}$	18. $9-x^2-\sqrt{77-13x^2} = 0$	19. $\sqrt{40-15x^2} + 2x^2 = 7$	20. $7-3x^2 = \sqrt{45-29x^2}$
21. $4x^2-\sqrt{55-24x^2} = 8$	22. $9-3x^2 = \sqrt{80-44x^2}$	23. $\sqrt{48-32x^2} + 3x^2 = 7$	24. $\sqrt{60-11x^2} + x^2 - 8 = 0$	25. $\sqrt{13x^2-3} - 2x^2 + 1 = 0$

16. Resuelve la ecuación:

1. $\sqrt{6x+21} - \sqrt{3} = \sqrt{6x+12}$	2. $\sqrt{8x-6} - \sqrt{4x-10} = 2\sqrt{2}$	3. $\sqrt{3x+15} - \sqrt{3x-9} = 2\sqrt{3}$	4. $\sqrt{12x+23} - \sqrt{9x+9} = \sqrt{3}$
5. $\sqrt{9x+24} - \sqrt{3} = \sqrt{6x+10}$	6. $\sqrt{4x+14} + \sqrt{2} = \sqrt{4x+20}$	7. $\sqrt{8x+24} - \sqrt{4x+5} = 2\sqrt{2}$	8. $\sqrt{3x+2} + 2\sqrt{3} = \sqrt{9x+24}$
9. $\sqrt{6x+21} - \sqrt{3} = \sqrt{12x+21}$	10. $\sqrt{4x+4} - \sqrt{8x-6} - \sqrt{2} = 0$	11. $\sqrt{9x+21} - \sqrt{6x+9} - \sqrt{3} = 0$	12. $\sqrt{12x+39} - \sqrt{9x+21} = \sqrt{3}$
13. $\sqrt{3x+21} - \sqrt{3} = \sqrt{12x+39}$	14. $\sqrt{8x+10} + \sqrt{2x+16} = 6\sqrt{2}$	15. $\sqrt{4x+34} - 2\sqrt{2} = \sqrt{4x+18}$	16. $\sqrt{12x+43} - \sqrt{3} = \sqrt{9x+24}$
17. $\sqrt{9x-6} - \sqrt{3x+9} + \sqrt{3} = 0$	18. $\sqrt{2x+3} - \sqrt{4x+10} + \sqrt{2} = 0$	19. $\sqrt{6x+18} - \sqrt{6x-6} - 2\sqrt{3} = 0$	20. $\sqrt{6x+15} - \sqrt{6x-1} - 2\sqrt{2} = 0$
21. $\sqrt{12x+19} - \sqrt{9x+6} - \sqrt{3} = 0$	22. $\sqrt{6x+20} - \sqrt{8x+18} - \sqrt{2} = 0$	23. $\sqrt{4x-2} - \sqrt{6x+12} + 2\sqrt{2} = 0$	24. $\sqrt{8x+10} - \sqrt{8x+20} + \sqrt{2} = 0$

17. Resuelve la ecuación:

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

— Soluciones —

1.1. 4 1.2. 3 1.3. 1 1.4.  $\frac{1}{4}$  1.5.  $\frac{2}{3}$  1.6.  $\frac{-1}{2}$  1.7. -3 1.8.  $\frac{-1}{4}$  1.9. -1 1.10. -2 1.11.  $\frac{3}{4}$  1.12.  $\frac{-4}{3}$  1.13.  $\frac{1}{2}$  1.14. -3 1.15.  $\frac{-3}{4}$  1.16. 1 1.17.  $\frac{3}{4}$   
 1.18.  $\frac{3}{2}$  1.19.  $\frac{2}{3}$  1.20. -3 1.21.  $\frac{-1}{4}$  1.22.  $\frac{4}{3}$  1.23.  $\frac{1}{2}$  1.24.  $\frac{-1}{2}$  1.25.  $\frac{-3}{4}$  2.1.  $\pm 1$  2.2.  $\pm \frac{1}{2}$  2.3.  $\pm 1$  2.4.  $\pm 1$  2.5.  $\pm 1$  2.6.  $\pm 2$  2.7.  $\pm \frac{3}{2}$  2.8.  $\pm \frac{3}{2}$  2.9.  
 $\pm 1$  2.10.  $\pm 1$  2.11.  $\pm 1$  2.12.  $\pm \frac{1}{2}$  2.13.  $\pm 2$  2.14.  $\pm \frac{3}{4}$  2.15.  $\pm \frac{1}{3}$  2.16.  $\pm \frac{3}{4}$  2.17.  $\pm 2$  2.18.  $\pm 1$  2.19.  $\pm 2$  2.20.  $\pm \frac{4}{3}$  2.21.  $\pm \frac{1}{2}$  2.22.  $\pm 4$  2.23.  $\pm \frac{1}{2}$  2.24.  $\pm \frac{1}{4}$   
 2.25.  $\pm \frac{3}{4}$  3.1. -1 3.2. 1 3.3. 1 3.4. 3 3.5. 2 3.6. 1 3.7. -2 3.8. -2 3.9. -1 3.10.  $\frac{1}{2}$  3.11. 1 3.12. -1 3.13. 1 3.14.  $\frac{-1}{3}$  3.15. 2 3.16. 2 3.17. -1  
 3.18. -2 3.19. -3 3.20. -2 3.21.  $\frac{-1}{2}$  3.22.  $\frac{-1}{2}$  3.23.  $\frac{1}{2}$  3.24.  $\frac{-1}{2}$  3.25.  $\frac{1}{2}$  4.1. -4 4.2.  $\frac{-1}{2}$  4.3. 1 4.4.  $\frac{1}{2}$  4.5. 1 4.6. 2 4.7.  $\frac{1}{3}$  4.8. 1 4.9. -4  
 4.10. -4 4.11.  $\frac{-3}{2}$  4.12. -2 4.13.  $\frac{-2}{3}$  4.14.  $\frac{-4}{3}$  4.15. -1 4.16.  $\frac{-1}{2}$  4.17. -2 4.18.  $\frac{3}{4}$  4.19. 1 4.20. -4 4.21.  $\frac{-4}{3}$  4.22.  $\frac{-1}{4}$  4.23.  $\frac{1}{2}$  4.24.  $\frac{4}{3}$  4.25.  $\frac{2}{3}$   
 5.1.  $\pm \frac{3}{4}$  5.2.  $\pm \frac{4}{3}$  5.3.  $\pm \frac{3}{2}$  5.4.  $\pm 3$  5.5.  $\pm 4$  5.6.  $\pm \frac{4}{3}$  5.7.  $\pm \frac{1}{2}$  5.8.  $\pm \frac{1}{3}$  5.9.  $\pm \frac{1}{2}$  5.10.  $\pm \frac{2}{3}$  5.11.  $\pm 1$  5.12.  $\pm 2$  5.13.  $\pm 2$  5.14.  $\pm 2$  5.15.  $\pm 2$  5.16.  $\pm \frac{1}{4}$   
 5.17.  $\pm 4$  5.18.  $\pm 1$  5.19.  $\pm 1$  5.20.  $\pm \frac{2}{3}$  5.21.  $\pm \frac{3}{2}$  5.22.  $\pm \frac{3}{4}$  5.23.  $\pm \frac{2}{3}$  5.24.  $\pm \frac{2}{3}$  5.25.  $\pm \frac{4}{3}$  6.1. 3 6.2.  $\frac{1}{2}$  6.3. 1 6.4.  $\frac{1}{2}$  6.5. 1 6.6. 3 6.7. 1 6.8.  $\frac{-1}{3}$   
 6.9.  $\frac{1}{3}$  6.10.  $\frac{1}{2}$  6.11.  $\frac{1}{2}$  6.12. -1 6.13. 1 6.14. 2 6.15. -1 6.16. -2 6.17. -3 6.18. -3 6.19. 3 6.20. -2 6.21. -1 6.22. 1 6.23. -1 6.24.  $\frac{1}{2}$  6.25.  
 $\frac{-1}{2}$  7.1. -1 7.2. 1 7.3. -1 7.4. 2 7.5.  $\frac{3}{2}$  7.6. -2 7.7. 1 7.8. 3 7.9. 2 7.10. 2 7.11. 3 7.12. 1 7.13. -2 7.14. 1 7.15.  $\frac{1}{2}$  7.16. 4 7.17.  $\frac{1}{2}$  7.18.  
 $\frac{3}{2}$  7.19.  $\frac{4}{3}$  7.20.  $\frac{-1}{2}$  7.21.  $\frac{4}{3}$  7.22.  $\frac{1}{2}$  7.23. -2 7.24.  $\frac{1}{2}$  8.1. 3 8.2. 1 8.3.  $\frac{-1}{4}, \frac{3}{2}$  8.4. 1, 3 8.5. 1, 3 8.6. 2 8.7. 2 8.8. 2 8.9. 2 8.10. 3 8.11. 3  
 8.12. 1 8.13. 1 8.14. 2 8.15. 2 8.16. 1 8.17.  $\frac{3}{2}$  8.18.  $\frac{1}{2}$  8.19. 1 8.20.  $\frac{3}{2}$  8.21.  $\frac{1}{2}$  8.22. 1 8.23.  $\frac{1}{3}$  8.24.  $\frac{1}{3}$  9.1.  $\pm 2$  9.2.  $\pm 3$  9.3.  $\pm 2$  9.4.  $\pm 1$   
 9.5.  $\pm 1$  9.6.  $\pm 1$  9.7.  $\pm 1$  9.8.  $\pm 1$  9.9.  $\pm 1$  9.10.  $\pm 1$  9.11.  $\pm 3$  9.12.  $\pm 1$  9.13.  $\pm 1$  9.14.  $\pm 2$  9.15.  $\pm 2$  9.16.  $\pm 1$  9.17.  $\pm 3$  9.18.  $\pm \frac{3}{2}$  9.19.  $\pm 1$  9.20.  $\pm 3$   
 9.21.  $\pm 1$  9.22.  $\pm 2$  9.23.  $\pm 3$  9.24.  $\pm 1$  10.1.  $\frac{1}{2}, 3$  10.2.  $\frac{3}{4}, 3$  10.3.  $\frac{1}{3}$  10.4. 1 10.5. 2 10.6. 2 10.7. 1, 3 10.8. 1 10.9. 3 10.10. 3 10.11. 4 10.12.  
 $\frac{1}{3}$  10.13.  $\frac{1}{3}$  10.14. 1 10.15. 1 10.16.  $\frac{3}{2}$  10.17.  $\frac{3}{2}$  10.18.  $\frac{1}{4}, \frac{1}{3}$  10.19. 1,  $\frac{3}{2}$  10.20.  $\frac{4}{3}$  10.21.  $\frac{2}{3}$  10.22. 3 10.23.  $\frac{3}{2}$  10.24.  $\frac{2}{3}, \frac{3}{4}$  10.25.  $\frac{3}{2}$  11.1.  $\frac{4}{3}$   
 $\frac{7}{3}$  11.2.  $\frac{2}{3}$  11.3. 0, 1 11.4. -1 11.5.  $\frac{2}{3}, \frac{5}{3}$  11.6. 3 11.7. -2, 2 11.8. -3 11.9. -3 11.10. -3 11.11.  $\frac{-2}{3}, \frac{1}{3}$  11.12.  $\frac{-5}{2}, \frac{-1}{2}$  11.13.  $\frac{1}{2}$  11.14. 1 11.15.  
 $\frac{-3}{4}$  11.16.  $\frac{3}{2}$  11.17. 2 11.18.  $\frac{2}{3}, \frac{5}{3}$  11.19.  $\frac{-3}{2}$  11.20.  $\frac{-1}{2}, \frac{3}{2}$  11.21. -1 11.22. -2 11.23. -1 11.24.  $\frac{1}{2}$  11.25.  $\frac{-1}{3}$  12.1. 1 12.2. 1 12.3. -1, 4 12.4. 1,  
 3 12.5. 1 12.6. 2 12.7.  $\frac{4}{3}$  12.8. 1 12.9. -1, 11 12.10. 2 12.11. -2 12.12. -4, 10 12.13.  $\frac{-3}{2}, 6$  12.14.  $\frac{-3}{2}$  12.15. -1 12.16. 3 12.17. 2 12.18. 1  
 12.19. -2, 6 12.20.  $\frac{-4}{3}$  12.21. 1 12.22. -1 12.23. -1 12.24. -2, 4 12.25.  $\frac{-4}{3}, 8$  13.1. 3 13.2. 2 13.3. 2, 10 13.4. 3 13.5.  $\frac{-3}{2}$  13.6.  $\frac{2}{3}$  13.7.  $\frac{1}{2}$   
 13.8.  $\frac{-2}{3}$  13.9.  $\frac{2}{3}$  13.10.  $\frac{1}{2}$  13.11. 1 13.12.  $\frac{4}{3}$  13.13.  $\frac{-1}{2}, \frac{7}{2}$  13.14. -3, 1 13.15.  $\frac{3}{4}$  13.16.  $\frac{-3}{2}, \frac{5}{2}$  13.17. -1 13.18.  $\frac{-2}{3}$  13.19. -1 13.20. -1 13.21.  $\frac{-1}{2}$   
 13.22.  $\frac{3}{2}$  13.23. 1, 5 13.24. -1 14.1.  $\frac{-1}{2}, 0, 1$  14.2. 1 14.3. 0, 2 14.4. -3, 0 14.5.  $\frac{1}{2}$  14.6.  $\frac{-3}{2}$  14.7.  $\frac{2}{3}$  14.8.  $\frac{-3}{2}, 0, 1$  14.9. 0, 3 14.10. -2 14.11. 1  
 14.12. 1, 3 14.13. -3 14.14. 1 14.15.  $\frac{-1}{2}, 0, 1$  14.16. -2, -1 14.17. -1,  $\frac{-2}{3}$  14.18.  $\frac{1}{3}$  14.19.  $\frac{1}{2}$  14.20.  $\frac{1}{3}, \frac{2}{3}$  14.21. -1,  $\frac{-1}{2}$  14.22. -3, -2 14.23. -1  
 14.24.  $\frac{-1}{3}$  14.25. 1,  $\frac{3}{2}$  15.1.  $\pm 2, \pm 1$  15.2.  $\pm 2, \pm 1$  15.3.  $\pm 2$  15.4.  $\pm \frac{3}{2}, \pm 1$  15.5.  $\pm 3$  15.6.  $\pm 3$  15.7.  $\pm 2, \pm \frac{3}{2}$  15.8.  $\pm 3$  15.9.  $\pm 2$  15.10.  $\pm 3$  15.11.  $\pm 1, \pm \frac{1}{2}$   
 15.12.  $\pm 2$  15.13.  $\pm 2, \pm \frac{3}{2}$  15.14.  $\pm 2, \pm \frac{3}{2}$  15.15.  $\pm \frac{3}{2}, \pm 1$  15.16.  $\pm 2, \pm \frac{3}{2}$  15.17.  $\pm 1, \pm \frac{1}{2}$  15.18.  $\pm 2, \pm 1$  15.19.  $\pm \frac{3}{2}, \pm 1$  15.20.  $\pm 1, \pm \frac{2}{3}$  15.21.  $\pm \frac{3}{2}$  15.22.  $\pm 1, \pm \frac{1}{3}$   
 15.23.  $\pm 1, \pm \frac{1}{3}$  15.24.  $\pm 2, \pm 1$  15.25.  $\pm 2$  16.1.  $\frac{-3}{2}$  16.2. 3, 7 16.3. 4 16.4.  $\frac{1}{3}, \frac{13}{3}$  16.5.  $\frac{1}{3}$  16.6. -3 16.7.  $\frac{-3}{4}, \frac{13}{4}$  16.8.  $\frac{1}{3}$  16.9.  $\frac{-3}{2}$  16.10. 1 16.11.  
 -1, 3 16.12. -1, 3 16.13. -3 16.14. 1 16.15. -4 16.16.  $\frac{-4}{3}, \frac{8}{3}$  16.17. 1 16.18.  $\frac{-1}{2}$  16.19.  $\frac{3}{2}$  16.20.  $\frac{1}{2}$  16.21.  $\frac{2}{3}, \frac{14}{3}$  16.22. -2 16.23. 1, 25 16.24.  $\frac{-1}{4}$   
 17.1.  $\frac{-1}{2}$  17.2.  $\frac{1}{4}$  17.3.  $\frac{2}{3}$  17.4. -1 17.5.  $\frac{3}{2}$  17.6.  $\frac{-1}{2}$  17.7. -1 17.8.  $\frac{4}{3}$  17.9.  $\frac{-1}{4}$  17.10. 2 17.11. 2 17.12. 1 17.13. -1 17.14. 2 17.15.  $\frac{-1}{3}$  17.16.  
 $\frac{-1}{4}$  17.17. -1 17.18. -2 17.19. -4 17.20.  $\frac{-1}{2}$  17.21.  $\frac{-1}{2}$  17.22. 1 17.23.  $\frac{4}{3}$  17.24. 1