



ECUACIONES DE SEGUNDO GRADO

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|--------------------------------------|--------------------------------|---|
| 1. $5x^2 - 15 = 0$ | 25. $6x^2 - 13x = 10x - 21$ | 50. $(x+2)(x+3) = 6$ |
| 2. $x^2 = 196$ | 26. $6x^2 - 17x - 14 = 0$ | 51. $(2x-3)^2 = 8x$ |
| 3. $7x^2 = 0$ | 27. $x^2 + 2x - 3 = 0$ | 52. $\frac{x^2+4}{3} - \frac{x}{6} = \frac{1}{2} - \frac{x^2+3}{4}$ |
| 4. $x^2 - 1 = 0$ | 28. $6 - 9x^2 - 15x = 0$ | 53. $\frac{x^2}{3} - \frac{x(x-1)}{4} + \frac{5}{6} = \frac{1}{2}(x^2+1)$ |
| 5. $4x^2 - 25 = 0$ | 29. $x - 6 + 12x^2 = 0$ | 54. $x^2 + x - 2 = 0$ |
| 6. $2x^2 = 0$ | 30. $9x^2 + x - 1 = 0$ | 55. $3x^2 + 9x - 30 = 0$ |
| 7. $9x^2 - 1 = 0$ | 31. $-5x - 3 + 10x^2 = 0$ | 56. $(x - \frac{1}{2})(x + \frac{1}{5}) = 0$ |
| 8. $x^2 - 2401 = 0$ | 32. $2 - 4x = -5x^2$ | 57. $x(x-2) - 5x^2 = x + 3$ |
| 9. $5x^2 - 1 = 0$ | 33. $(x+2)(x-2) = 2(x+5) + 21$ | 58. $(x+1)(x-1) = 2(x+2)^2$ |
| 10. $2x^2 - 36 = 0$ | 34. $x^2 + 13x + 36 = 0$ | 59. $x^2 + 7x - 8 = 5x^2 - 1$ |
| 11. $2x^2 - 34 = 0$ | 35. $-7 - 5x = -x^2$ | 60. $(x+7)x - 5x^2 = (x+1)^2$ |
| 12. $x^2 - x = 0$ | 36. $x^2 - 10x + 21 = 0$ | 61. $3x^2 = 0$ |
| 13. $x^2 + 3x = 0$ | 37. $2x^2 + 20 - 14x = 0$ | 62. $-5x^2 - 3 = 0$ |
| 14. $2x^2 + x = 0$ | 38. $6x^2 - 4 = -2x$ | 63. $x^2 - 3 = 0$ |
| 15. $x^2 + 5x = 0$ | 39. $8x^2 - 2x = 3$ | 64. $2x^2 + 3 = 0$ |
| 16. $4x^2 - 3x = 0$ | 40. $x^2 + x = 12$ | 65. $(x-2)^2 - 4 = 0$ |
| 17. $x^2 + 8x = 0$ | 41. $-6x + 5x^2 = 27$ | 66. $3x^2 - 27 = 0$ |
| 18. $3x^2 + x = 0$ | 42. $5x^2 + 2x - 3 = 0$ | 67. $x^2 - 4x + 8 = 0$ |
| 19. $5x^2 - 6x = 0$ | 43. $x^2 + 3x = 40$ | 68. $10x^2 - 3x + 1 = 0$ |
| 20. $8x^2 = -2x$ | 44. $3x^2 - 10x = 24$ | 69. $3x^2 + 5x - 2 = 0$ |
| 21. $-x = -x^2$ | 45. $x^2 + 3x = 28$ | 70. $x^2 + x + 4 = 0$ |
| 22. $\frac{2}{3}x^2 = \frac{5}{4}x$ | 46. $(3x-1)(2x+5) = 0$ | |
| 23. $-\frac{4}{3}x = \frac{1}{2}x^2$ | 47. $(x+5)(x-5) = 0$ | |
| 24. $2x^2 + 5x = -2$ | 48. $(2x+3)(3x-2) = 1$ | |
| | 49. $(x-1)(x+2) = 0$ | |

Sin resolver las ecuaciones, di cuántas soluciones tienen:

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|--------------------|------------------------|----------------------|
| 1. $16x^2 + 1 = 0$ | 2. $x^2 + 4x - 12 = 0$ | 3. $-9x^2 = 12x + 4$ |
| 4. $9x^2 = -360$ | 5. $20x + 4x^2 = -25$ | 6. $x^2 + x = -4$ |

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|---------------------------------------|--|
| Factorizar las siguientes ecuaciones: | Escribir una ecuación de 2º grado cuyas soluciones sean: |
| 1. $9x^2 - 1 = 0$ | 1. 1 y -2 |
| 2. $2x^2 + x = 0$ | 2. 3/2 |
| 3. $x^2 - 4x + 4 = 0$ | 3. 0 y -5/3 |
| 4. $2x^2 + 5x + 2 = 0$ | 4. No tenga solución |



ECUACIONES RACIONALES

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

2. $x + \frac{12}{x} = 7$

3. $\frac{x^2+5}{x+1} = \frac{7}{2}$

4. $x+1 = \frac{6}{x}$

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

6. $\frac{3x-7}{5x^2+1} = \frac{2}{3}$

7. $\frac{1}{x-1} + \frac{3}{x-1} = 6$

8. $\frac{x}{x+1} + \frac{x}{x+4} = 1$

9. $\frac{2x}{x+2} + \frac{x+2}{2x} = 2$

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

11. $x + \frac{1}{x+3} = 5$

12. $x + \frac{1}{x-3} = 5$

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

14. $\frac{x-2}{5} = \frac{2}{x+1}$

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

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

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

18. $\frac{x+3}{x-5} + \frac{x-1}{x-3} = 1$

19. $\frac{3}{x+3} + \frac{1}{6} = \frac{2}{x-2}$

20. $\frac{5}{x-2} + \frac{x-2}{x+2} = 2$

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

22. $\frac{3x+3}{12x-6} = \frac{x-9}{7(x-6)}$

23. $\frac{x+7}{2x-7} = \frac{x-5}{x+5}$

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

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

26. $\frac{x}{x-2} - \frac{4}{x+2} = \frac{32}{x^2-4}$

27. $\frac{1}{x} - \frac{1}{6} = \frac{1}{x+1}$

28. $\frac{5(x-1)}{x+1} = \frac{2x+1}{x-1}$

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

30. $\frac{3(x-5)}{2} + \frac{5}{x} = \frac{x}{5}$

31. $\frac{x+6}{x-6} + \frac{x-6}{x+6} = \frac{17}{4}$

32. $\frac{3x-5}{5x+15} = \frac{x+5}{6x+10}$

33. $\frac{2x-1}{x+1} - \frac{x-7}{x-1} = 4 - \frac{3x-1}{x+2}$

34. $\frac{2}{x-1} - \frac{5}{2} = \frac{1-x}{2}$

35. $\frac{20}{x+1} + \frac{5x-5}{x^2-1} = \frac{52}{x-1} - \frac{40}{x+1}$

36. $\frac{4}{x-2} + \frac{5}{x+2} = \frac{8}{x^2-4}$

37. $\frac{x+8}{x-1} - \frac{x+4}{x+1} = \frac{12x}{x^2-1}$

38. $\frac{10}{x+10} - \frac{5}{x+2} = 0$

39. $2 + \frac{x+1}{x-1} = \frac{3x}{1 - \frac{x-1}{x+1}}$

40. $\frac{2}{x + \frac{1}{1 + \frac{x+1}{x+2}}} = \frac{6}{3x-1}$

**ECUACIONES BICUADRADAS**

1. $x^4 - 13x^2 + 36 = 0$
2. $144x^4 - 25x^2 + 1 = 0$
3. $4x^4 - 17x^2 + 4 = 0$
4. $x^4 + 4x^2 + 3 = 0$
5. $x^4 - 8x^2 - 9 = 0$
6. $6x^4 - 11x^2 + 3 = 0$
7. $8x^4 - 2x^2 = 1$
8. $x^4 + 16x^2 - 225 = 0$
9. $9x^4 = -5x^2 + 4$
10. $x^4 - \frac{11}{6}x^2 + \frac{1}{2} = 0$
11. $x^2(3x^2 + 2) = 4(x^2 - 3) + 13$
12. $(x^2 - 25)(x^2 - 16) = 0$
13. $\frac{x^2}{x^2 - 1} + \frac{x^2}{x^2 - 4} = 4$
14. $x^4 = -144 + 25x^2$
15. $36x^4 + 1 = 13x^2$
16. $25 - 26x^2 = -x^4$
17. $(x^2 - 5)(x^2 - 3) = 1$
18. $\frac{x^2 - 6}{x^2 - 6} = \frac{21 - x^2}{2x^2 - 23}$
19. $\frac{x^2 + 1}{x} + \frac{x}{x^2 - 1} = \frac{19x}{12}$
20. $2x^4 - 32x^2 = 0$

ECUACIONES IRRACIONALES**CON UN SÓLO RADICAL**

1. $\sqrt{x} = -6$
2. $x + \sqrt{4x + 1} = 5$
3. $\sqrt{x} - 16 = 0$
4. $\sqrt{x^2 - 5} = 2$
5. $\sqrt{10x^2 - 9} = 3x$
6. $x - \sqrt{25 - x^2} = 1$
7. $-3 + \sqrt{x} = 3 - x$
8. $2 + \sqrt{x - 5} = 13 - x$
9. $3x - 3\sqrt{x + 3} = x + 3$
10. $x + 2\sqrt{x - 1} - 4 = 0$

CON DOS RADICALES

11. $\sqrt{x + 20} - \sqrt{x - 1} = 3$
12. $\sqrt{x + 3} + \sqrt{x + 4} = 1$
13. $\sqrt{2x^2 - 4x} = \sqrt{4x - 6}$
14. $5 - \sqrt{x} = 6 + \sqrt{x}$
15. $\sqrt{x + 2} + \sqrt{2x + 2} = x$
16. $\sqrt{2x + 1} + \sqrt{3x + 4} = 1$

CON TRES RADICALES

17. $\sqrt{x - 4} + \sqrt{x + 4} = \sqrt{2x}$
18. $\sqrt{x + 6} + \sqrt{x + 1} = \sqrt{7x + 4}$

OTRAS

19. $\frac{x}{\sqrt{x}} = x - \sqrt{x}$
20. $\frac{2 + \sqrt{4x}}{4 - \sqrt{x}} = \frac{4 + \sqrt{x}}{\sqrt{x}}$