

Решение квадратного уравнения

Практикум

1. Решить уравнения

- 1. $x^2 - x = 0$
- 2. $x^2 + 6x + 9 = 0$
- 3. $x^2 - 81 = 0$
- 4. $x^2 - 4x + 4 = 0$
- 5. $3x^2 - 3x = 0$
- 6. $x^2 + 2x - 3 = 0$
- 7. $x^2 + 2x = 0$
- 8. $x^2 + 4x + 3 = 0$
- 9. $x^2 - 1/144 = 0$

Ответы:

- 1. $\{0; 1\}$
- 2. $\{-3\}$
- 3. $\{-9; 9\}$
- 4. $\{2\}$
- 5. $\{0; 1\}$
- 6. $\{-3; 1\}$
- 7. $\{-2; 0\}$
- 8. $\{-3; -1\}$
- 9. $\{-1/12; 1/12\}$

2. Решить уравнения

• 1. $2x^2 - 5x + 2 = 0$ 3. $4x^2 - 12x + 9 = 0$ 5. $6x^2 + 5x + 1 = 0$

• 2. $10x^2 - 6x + 0,9 = 0$ 4. $3x^2 - 7x - 1 = 0$ 6. $2x^2 - 3x + 2 = 0$

• **Ответы:**

• 1. $\{1/2; 2\}$ 3. $\{1,5\}$ 5. $\{-1/3; -1/2\}$

• 2. $\{0,3\}$ 4. $\left\{ \frac{7 - \sqrt{61}}{6}; \frac{7 + \sqrt{61}}{6} \right\}$ 6. $D < 0, x \notin \mathbb{R}$

3. Решить уравнения

- 1. $x^2 - 2x - 15 = 0$
- 2. $x^2 + 4x + 4 = 0$
- 3. $x^2 - 12x + 35 = 0$
- 4. $5x^2 - 9x - 2 = 0$
- 5. $x^2 - 2x + 1 = 0$
- 6. $x^2 + 10x + 9 = 0$
- 7. $4x^2 + 7x - 2 = 0$
- 8. $x^2 - 5x + 6 = 0$
- 9. $x^2 + 2x - 8 = 0$
- 10. $x^2 - 6x + 9 = 0$
- 11. $3x^2 + 14x + 16 = 0$
- 12. $x^2 - 11x + 15 = 0$

• Ответы:

- 1. $\{-3; 5\}$
- 2. $\{-2\}$
- 3. $\{5; 7\}$
- 4. $\{-1/5; 2\}$
- 5. $\{1\}$
- 6. $\{-9; -1\}$
- 7. $\{-2; 1/4\}$
- 8. $\{2; 3\}$
- 9. $\{-4; 2\}$
- 10. $\{3\}$
- 11. $\{-8/3; -2\}$
- 12. $\left\{ \frac{11 - \sqrt{61}}{2}, \frac{11 + \sqrt{61}}{2} \right\}$

4. Решить уравнения

- 1. $2x^2 - 9x + 9 = 0$ 4. $3x^2 + x - 4 = 0$ 7. $10x^2 - 11x + 3 = 0$
- 2. $5x^2 - 11x + 6 = 0$ 5. $3x^2 + 11x + 6 = 0$ 8. $2x^2 + x - 10 = 0$
- 3. $4x^2 + 12x + 5 = 0$ 6. $86x^2 + 5x - 6 = 0$

• Ответы:

- 1. $\{1,5; 3\}$ 4. $\{-4/3; 1\}$ 7. $\{0,5; 0,6\}$
- 2. $\{1; 6/5\}$ 5. $\{-3; 2/3\}$ 8. $\{-5/2; 2\}$
- 3. $\{-5/2; -1/2\}$ 6. $\{-19/86; -7/43\}$

5. Решить уравнения

- 1. $5x^2 - 7x + 2 = 0$
- 2. $939x^2 + 978x + 39 = 0$
- 3. $11x^2 + 27x + 16 = 0$
- 4. $839x^2 - 448x - 391 = 0$
- 5. $11x^2 + 25x - 36 = 0$
- 6. $2006x^2 - 2007x + 1 = 0$
- 7. $3x^2 + 5x - 8 = 0$
- 8. $313x^2 + 326x + 13 = 0$

Ответы:

- 1. $\{2/5; 1\}$
- 2. $\{-1; -39/939\}$
- 3. $\{-16/11; -1\}$
- 4. $\{-391/839; 1\}$
- 5. $\{-36/11; 1\}$
- 6. $\{1; 1/2006\}$
- 7. $\{-8/3; 1\}$
- 8. $\{-1; -13/313\}$

6. Решить уравнения

Ответы:

- 1. $4x^2 - 36x + 77 = 0$

- 1. $\{7/2; 11/2\}$

- 2. $15x^2 - 22x - 37 = 0$

- 2. $\{-1; 37/15\}$

- 3. $4x^2 + 20x + 25 = 0$

- 3. $\{-5/2\}$

- 4. $9x^2 - 12x + 4 = 0$

- 4. $\{2/3\}$

- 5. $x^2 - 22x + 105 = 0$

- 5. $\{7; 15\}$

- 6. $9x^2 + 6x + 1 = 0$

- 6. $\{-1/3\}$

7. Решить уравнения

Ответы:

- 1. $x^2 - 8x - 9 = 0$
- 2. $x^2 + 6x - 40 = 0$
- 3. $x^2 + 18x + 81$
- 4. $x^2 - 56x + 64 = 0$
- 5. $x^2 - 14x + 48 = 0$
- 6. $x^2 + 4x + 15 = 0$
- 1. $\{-1; 9\}$
- 2. $\{-10; 4\}$
- 3. $\{-9\}$
- 4. $\{28-12\sqrt{5}; 28+12\sqrt{5}\}$
- 5. $\{6; 8\}$
- 6. $D < 0, x \notin \mathbb{R}$

8. Решить уравнения

Ответы:

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

- 1. $\{-2; 3\}$

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

- 2. $\{-3; 1\}$

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

- 3. $\{-1; 3\}$

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

- 4. $D < 0, x \notin \mathbb{R}$

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

- 5. $\{2\}$

- 6. $4x^2 - 4x - 1 = 0$

- 6. $\left\{ \frac{1 - \sqrt{2}}{2}; \frac{1 + \sqrt{2}}{2} \right\}$

9. Решить уравнения

Ответы:

- 1. $z^2 - 7z + 6 = 0$

- 1. $\{1; 6\}$

- 2. $z^2 - 11z + 18 = 0$

- 2. $\{2; 9\}$

- 3. $z^2 - z - 6 = 0$

- 3. $\{-2; 3\}$

- 4. $z^2 - 4z + 4 = 0$

- 4. $\{2\}$

- 5. $z^2 + 5z + 4 = 0$

- 5. $\{-4; -1\}$

- 6. $z^2 - 2z + 3 = 0$

- 6. $\{-3; 1\}$

10. Решить уравнения

- 1. $2x^2 + 6x - 5 = 0$ 4. $x^2 + 2x + 5 = 0$ 7. $9x^2 + 6x + 1 = 0$
- 2. $12x^2 - 6x + 1 = 0$ 5. $3x^2 + 12x + 10 = 0$ 8. $4x^2 - 3x - 7 = 0$
- 3. $3x^2 - 10x + 3 = 0$ 6. $3x^2 - 6x + 8 = 0$ 9. $2x^2 - 4x + 5 = 0$

• Ответы:

- 1. $\left\{\frac{3-\sqrt{19}}{2}; \frac{3+\sqrt{19}}{2}\right\}$ 4. $D < 0, x \notin \mathbb{R}$ 7. $\{-1/3\}$
- 2. $D < 0, x \notin \mathbb{R}$ 5. $\left\{\frac{-6-\sqrt{6}}{3}; \frac{-6+\sqrt{6}}{3}\right\}$ 8. $\{-1; 7/4\}$
- 3. $\{1/3; 3\}$ 6. $D < 0, x \notin \mathbb{R}$ 9. $D < 0, x \notin \mathbb{R}$