

Линейные и сводящиеся к ним уравнения

▪ Примеры

Решите уравнения:

№1.

$$\frac{5}{7}x = 4\frac{2}{7}$$

№2.

$$\frac{8}{9}x = 18\frac{2}{3}$$

№3.

$$-\frac{5}{8}x = -3\frac{3}{4}$$

№4.

$$\frac{3}{4}x = -19\frac{1}{2}$$

№5.

$$(x-4)^2 = (x+1)^2$$

№6.

$$(6x+11)^2 = (6x+13)^2$$

№7.

$$x^2 - 13 = (x-13)^2$$

№8.

$$(x+8)^5 = 243$$

▪ **Решение (примеры)**

№1.

$$\frac{5}{7}x = 4\frac{2}{7}$$

$$\frac{5}{7}x = \frac{30}{7} \quad \left| \cdot \frac{7}{5} \right.$$

$$\underline{x = 6}$$

№2.

$$\frac{8}{9}x = 18\frac{2}{3}$$

$$\frac{8}{9}x = \frac{56}{3} \quad \left| \cdot \frac{9}{8} \right.$$

$$x = 7 \cdot 3$$

$$\underline{x = 21}$$

№3.

$$-\frac{5}{8}x = -3\frac{3}{4}$$

$$-\frac{5}{8}x = -\frac{15}{4} \quad \left| \cdot \left(-\frac{8}{5}\right) \right.$$

$$x = 3 \cdot 2$$

$$\underline{x = 6}$$

№4.

$$\frac{3}{4}x = -19\frac{1}{2}$$

$$\frac{3}{4}x = -\frac{39}{2} \quad \left| \cdot \frac{4}{3} \right.$$

$$x = -13 \cdot 2$$

$$\underline{x = -26}$$

№5.

$$(x-4)^2 = (x+1)^2$$

$$(x-4)^2 - (x+1)^2 = 0$$

$$(x-4-(x+1))(x-4+x+1) = 0$$

$$(x-4-x-1)(2x-3) = 0$$

$$-5 \cdot (2x-3) = 0$$

$$2x-3 = 0$$

$$2x = 3$$

$$\underline{x = 1,5}$$

№6.

$$(6x+11)^2 = (6x+13)^2$$

$$(6x+11)^2 - (6x+13)^2 = 0$$

$$(6x+11-(6x+13))(6x+11+6x+13) = 0$$

$$(6x+11-6x-13)(12x+24) = 0$$

$$-2 \cdot (12x+24) = 0$$

$$12x+24 = 0$$

$$12x = -24$$

$$\underline{x = -2}$$

№7.

$$x^2 - 13 = (x-13)^2$$

$$x^2 - 13 = x^2 - 26x + 13^2$$

$$26x = 13 + 13^2$$

$$2 \cdot 13x = 13(1+13)$$

$$2x = 14$$

$$\underline{x = 7}$$

№8.

$$(x+8)^5 = 243$$

$$(x+8)^5 = 3^5$$

$$x+8 = 3$$

$$x = -8 + 3$$

$$\underline{x = -5}$$

Вариант 1

Решите уравнения:

№1. $\frac{5}{9}x = 14\frac{4}{9}$	№2. $-\frac{4}{7}x = -6\frac{6}{7}$	№3. $-\frac{7}{8}x = -12\frac{1}{4}$	№4. $-\frac{8}{9}x = 21\frac{1}{3}$
№5. $(x-10)^2 = (x+4)^2$	№6. $(2x-11)^2 = (2x-9)^2$	№7. $(6x-7)^2 = (6x+1)^2$	№8. $(x-9)^2 = x^2 - 9$
№9. $x^2 + 11 = (x-1)^2$	№10. $(x+9)^3 = 125$	№11. $(x-8)^9 = 1$	№12. $(x-5)^5 = 32$

Вариант 2

Решите уравнения:

№1. $\frac{7}{8}x = 21\frac{7}{8}$	№2. $-\frac{3}{5}x = -8\frac{2}{5}$	№3. $\frac{5}{6}x = 17\frac{1}{2}$	№4. $-\frac{5}{6}x = 18\frac{1}{3}$
№5. $(x-1)^2 = (x+6)^2$	№6. $(5x-3)^2 = (5x+13)^2$	№7. $(5x-6)^2 = (5x-4)^2$	№8. $x^2 + 1 = (x+1)^2$
№9. $x^2 - 8 = (x+4)^2$	№10. $(x-3)^3 = 343$	№11. $(x-2)^9 = 1$	№12. $(x+5)^9 = 512$

	№1	№2	№3	№4	№5	№6	№7	№8	№9	№10	№11	№12
Вар.1	26	12	14	-24	3	5	0,5	5	-5	-4	9	7
Вар.2	25	14	21	-22	-2,5	-1	1	0	-3	10	3	-3