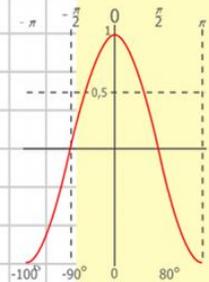
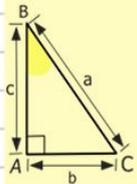
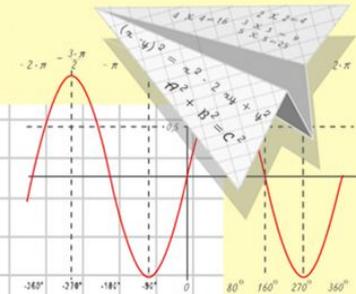
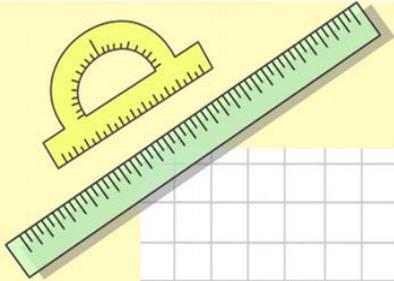


Математик

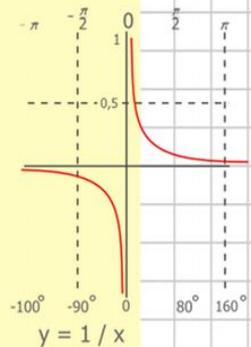
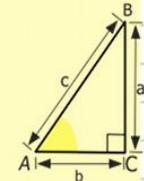
а

Иррациональные уравнения



$y = \cos x$

- $2 \times 2 = 4$
- $3 \times 3 = 9$
- $4 \times 4 = 16$
- $5 \times 5 = 25$
- $6 \times 6 = 36$
- $7 \times 7 = 49$
- $8 \times 8 = 64$



$$\begin{array}{r} 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

**Автор: учитель математики
Серебрянская Л.А.**

$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

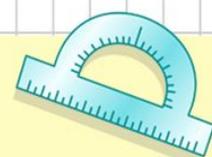
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$

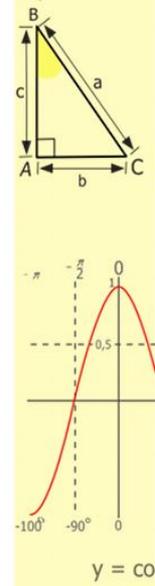
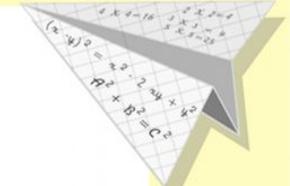
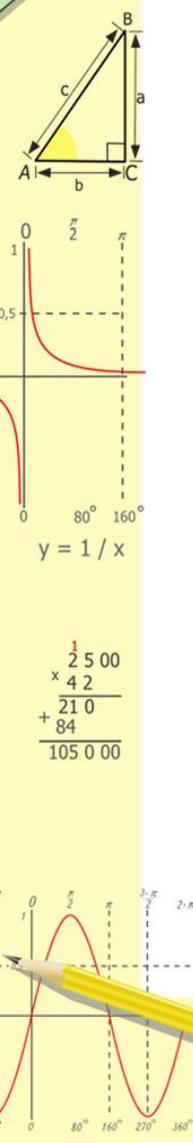


Иррациональные уравнения

Иррациональными называются уравнения, в которых переменная содержится под знаком корня

$$\sqrt{f(x)} = g(x)$$

$$\sqrt[3]{x^2 - 1} + \sqrt[3]{x^2 + 2} = \sqrt{3 - 2x}, \quad \sqrt{x^2 - 3x + 4} = 2.$$

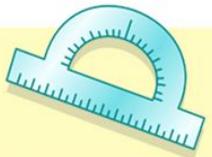


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$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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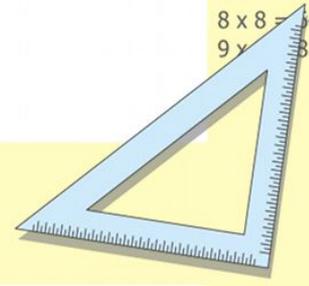
$$\sin 90^\circ = 1$$



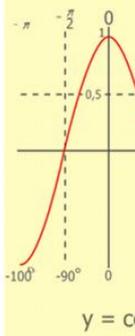
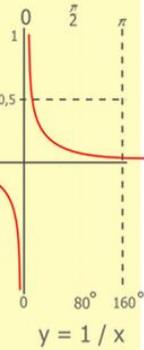
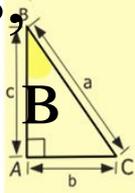
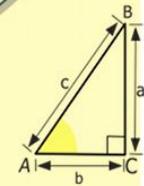
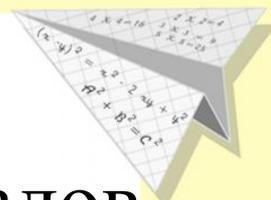
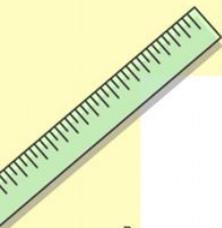
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

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$$(x+y)(x-y) = x^2 - y^2$$

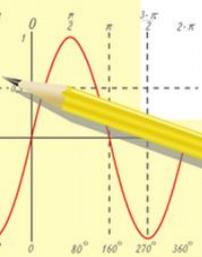


Иррациональные уравнения содержат радикалы. Чтобы избавиться от радикалов, необходимо возвести обе части уравнения в одну и ту же степень с натуральным показателем.



$$\begin{array}{r} \frac{1}{2} 500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

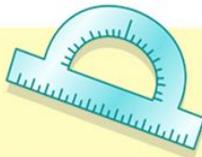
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$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

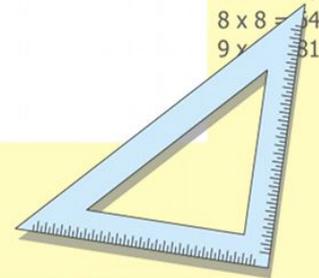
$$\sin 90^\circ = 1$$



$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$

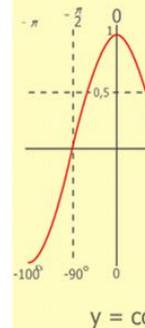
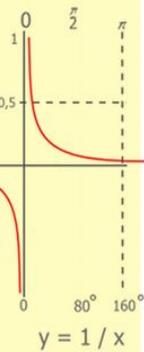
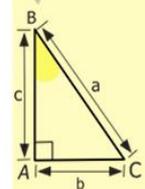
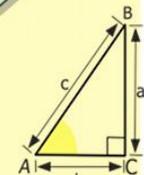
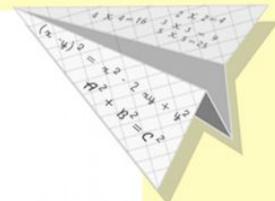
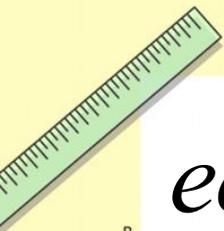
$$\begin{cases} y = 1 \\ x = 25 + 45 \\ \hline x = 70 \end{cases}$$

$$(x+y)(x-y) = x^2 - y^2$$



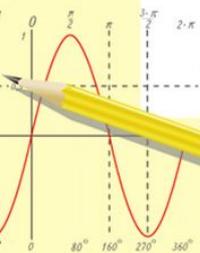
если:

- Возводим в нечетную степень, то получаем равносильное уравнение;
- Возводим в четную степень, то можем получить посторонние корни. В этом случае делаем проверку.



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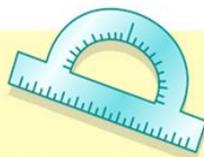
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$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

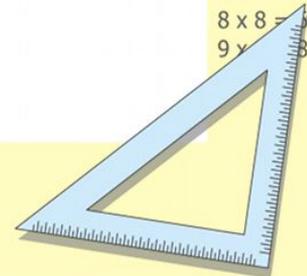
$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

$$\sin 90^\circ = 1$$



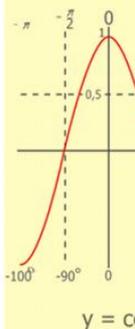
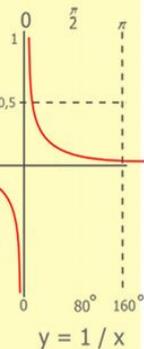
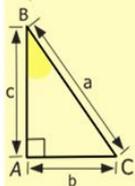
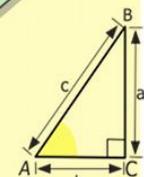
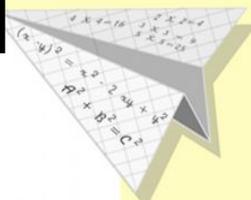
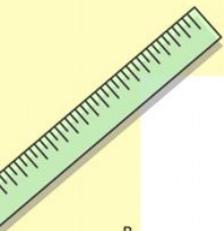
$$\begin{cases} y = \sin 90 \\ x = 25y + 45 \end{cases}$$
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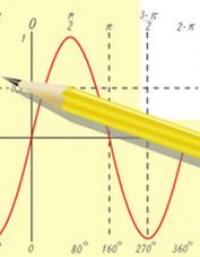
Алгоритм решения иррационального уравнения

1. Возвести обе части уравнения в квадрат.
2. Решить полученное рациональное уравнение.
3. Проверить полученные корни подстановкой в исходное уравнение.
4. Выписать ответ.



$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 10500 \end{array}$$

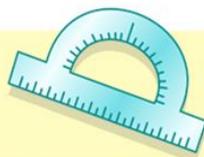
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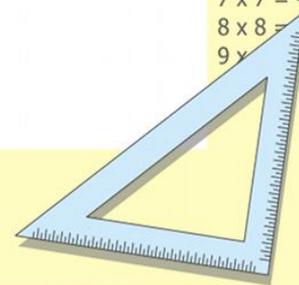
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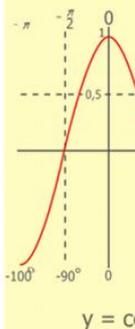
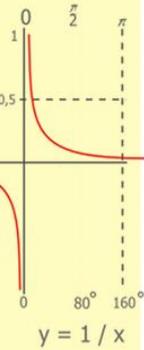
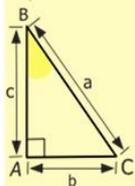
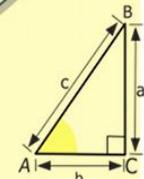
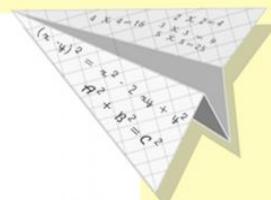
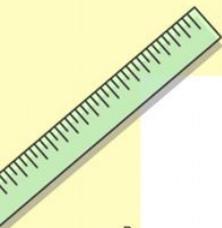
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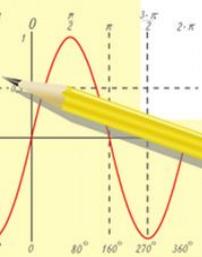
Решить иррациональное уравнение

$$\sqrt{x^2 - x - 2} = 2$$



$$\begin{array}{r} 1 \\ 2500 \\ \times 42 \\ \hline 210 \\ + 84 \\ \hline 105000 \end{array}$$

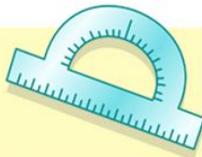
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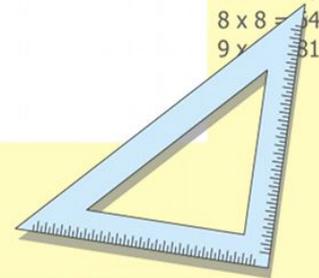
$$\sin 90^\circ = 1$$

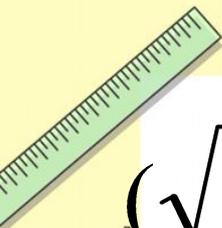


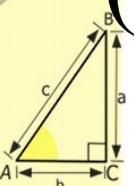
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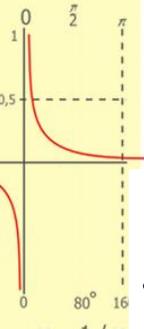
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$$(x+y)(x-y) = x^2 - y^2$$




$$(\sqrt{x^2 - x - 2})^2 = (2)^2$$

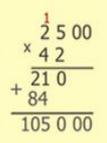

$$x^2 - x - 2 = 4$$


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

$$x_1 = 3$$

$$x_2 = -2$$

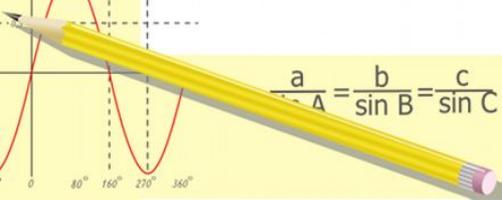
Проверка


$$\sqrt{3^2 - 3 - 2} = 2$$

$$\sqrt{(-2)^2 + 2 - 2} = 2$$

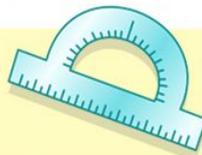
Ответ: 3; -2

$$2 = 2$$


$$\frac{a}{A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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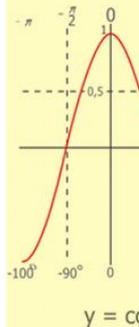
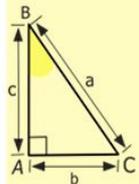
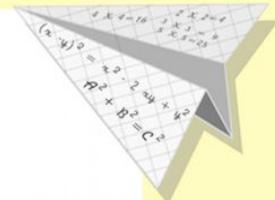
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