

## Elementary Math

Основными операциями в данном разделе являются простые математические преобразования над числами и основные математические действия.

### Arithmetic

Perform multiple arithmetic operations.

Do basic arithmetic:

125 + 375

=

1.05 \* 12,000

=

7^3

=

Find square roots:

sqrt 1801

=

[More examples](#)

### Place Value

Explore place value charts for decimal numbers.

Show place values for a number:

place values of 6135

=

Find the value of a particular digit of a number:

value of the digit 3 in 23904

=

[More examples](#)

### Fractions

Perform arithmetic on fractions.

Add fractions:

1/6 + 5/12 + 3/4

=

Multiply fractions:

3/8 \* 2/7

=

Do exact arithmetic with fractions:

1/4 \* (4 - 1/2)

=

[More examples](#)

### Percentages

Compute percentages or solve percentage increase/decrease problems.

Convert a fraction to a percentage:

convert 1/6 to percent

=

Calculate a percentage of a quantity:

30% of 8 miles

=

Compute a discounted price:

15% off of \$29.95

=

[More examples](#)

Также существует возможность решать простые математические задачи заданные текстом:

## Mathematical Word Problems

Compute the answer and examine related facts for a math word problem.

Solve a word problem:

Rachel has 17 apples. She gives 9 to Sarah. How many apples does Rachel have now? =

Rhonda has 12 marbles more than Douglas.  
Douglas has 6 marbles more than Bertha.  
Rhonda has twice as many marbles as Bertha has. How many marbles does Douglas have? =

[More examples](#)

## Algebra

Данный раздел позволяет решать многочисленные алгебраические задания, например вычисление рациональных функций, преобразование выражений, матрицы и т.д.

### Equation Solving

Solve equations in one or more variables both symbolically and numerically.

Solve a polynomial equation:

solve  $x^2 + 4x + 6 = 0$  =

Solve a system of linear equations:

$x+y=10$ ,  $x-y=4$  =

Solve an equation with parameters:

solve  $a x^2 + b x + c = 0$  for  $x$  =

[More examples](#)

### Simplification

Simplify algebraic functions and expressions.

Simplify an expression:

$1/(1+\sqrt{2})$  =

simplify  $x^5 - 20x^4 + 163x^3 - 676x^2 + 1424x - 1209$  =

simplify  $\cos(\arcsin(x)/2)$  =

[More examples](#)

### Polynomials

Solve, plot and find alternate forms of polynomial expressions in one or more variables.

Compute properties of a polynomial in several variables:

$x^3 + x^2 y + x y^2 + y^3$  =

Factor a polynomial:

factor  $2x^5 - 19x^4 + 58x^3 - 67x^2 + 56x - 48$  =

[More examples](#)

### Rational Functions

Compute discontinuities and other properties of rational functions.

Compute properties of a rational function:

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

Compute a partial fraction decomposition:

partial fractions  $(x^2-4)/(x^4-x)$  =

[More examples](#)

### Finite Groups

Discover properties of groups containing a finite number of elements.

Get information about a finite group:

alternating group A\_5 =

Ask about a property of a group:

order of the monster group =

Do algebra with permutations:

perm (1 2 3 4)^3(1 2 3)^4-1 =

More examples

### Quaternions

Perform computations with the quaternion number system.

Get information about a quaternion:

quaternion: 0+2i-j-3k =

Do calculations with quaternions:

quaternion -Sin[Pi]+3i+4j+3k multiplied by -1j+3.9i+4-3k =

More examples

### Finite Fields

Discover properties of fields containing a finite number of elements.

Compute properties of a finite field:

Z/7Z =

Compute a specific property:

number of primitive polynomials of GF(3125) =

More examples

### Domain & Range

Find the domain and range of mathematical functions.

Compute the domain of a function:

domain of f(x) = x/(x^2-1) =

Compute the range of a function:

range of e^(-x^2) =

More examples

## Trigonometry

Данный раздел позволяет решать любые задачи так или иначе связанные с тригонометрией. Вычисление выражений, тригонометрические функции, теоремы тригонометрии.

## Trigonometric Calculations

Evaluate trigonometric functions or larger expressions involving trigonometric functions with different input values.

Compute values of trigonometric functions:

$\sin(\pi/5)$  =

$\tan(60 \text{ deg})$  =

Compute values of inverse trigonometric functions:

$\arcsin(1/2)$  =

## Trigonometric Identities

Learn about and apply well-known trigonometric identities.

Find multiple-angle formulas:

expand  $\sin 4x$  =

Find addition formulas:

expand  $\sin(x+y+z)$  =

Find other trig identities:

factor  $\sin x + \sin y$  =

## Trigonometric Functions

Learn about and perform computations using trigonometric functions and their inverses, over the real or complex numbers.

Compute properties of a trigonometric function:

$\cos x$  =

$\sec(5x)$  =

Compute properties of an inverse trigonometric function:

$\operatorname{arccot} x$  =

Plot a trigonometric function:

plot  $\sin(x)$  =

Analyze a trigonometric function of a complex variable:

$\sin(z)$  =

Analyze a trigonometric polynomial:

$\cos(x) + 1/2 \cos(2x) + 1/4 \cos(4x)$  =

Generate a table of special values of a function:

closed-form values of  $\tan(x)$  =

Compute the root mean square of a periodic function:

root mean square  $3\sin(t)-2\cos(2t)$  =

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## Spherical Trigonometry

Study the relationships between side lengths and angles of triangles when these triangles are drawn atop a spherical surface.

Apply a theorem of spherical trigonometry:

law of haversines =

Plot a trigonometric function:

plot  $\sin(x)$  =

Analyze a trigonometric function of a complex variable:

$\sin(z)$  =

Analyze a trigonometric polynomial:

$\cos(x) + 1/2 \cos(2x) + 1/4 \cos(4x)$  =

Generate a table of special values of a function:

closed-form values of  $\tan(x)$  =

Compute the root mean square of a periodic function:

root mean square  $3\sin(t)-2\cos(2t)$  =

root mean square  $\text{squarewave}(t/3) + \sin(\pi t)$  =