

INVALID test cases

//binary operator preceded by binary operator

1++2

//binary operator preceded by unary operator

cos\*4

//unary operator preceded by closing brace

)sin4

//unary operator preceded by a number

5sin4

//unary operator followed by a unary operator

costan6

//unary operator followed by a binary operator

sin+6

//Invalid operator

6&7

//Unary operator spelled wrong

sen4

//Unary operator followed by a period

cos.5

//Unary operator followed by random character

cosy

//Binary operator followed by nothing

1+

//Binary operator at the beginning of the expression

+1

//Open parenthesis at the end of the expression

1+1(

//Unary operator cannot be followed by a binary operator

1++2

//Division by 0

4/0

//Random characters for operands

a+b

//Number ending with a period

2.+3

//Number with multiple periods

1.2.2.2

//Number beginning with a period

1+.2

//Logarithm of 0

log0

//ln of negative numbers

ln-2

//Double overflow

100000000000^1000000

//Number that is too many significant digits for double to handle precisely

1000000000000000000000

// Opening and closing brackets don't match

(1+2}

// Open bracket is immediately followed by a closing bracket

()

VALID test cases

//Unary operator preceded by a binary operator

5+sin4

//Unary operator followed by parenthesis

cos(4+2)

//unary operator at the beginning of an expression

tan0.5

//Expression with parentheses

(1+2)\*3

//Expression with brackets

$\{1+2\}^3$

//Multiple operators with different precedence  
 $1+2*3^2$  (result should be 19)

//Expression begins with unary minus  
 $-5$

//Unary minus before parenthesis  
 $-(1+1)$

//Unary minus before unary operator  
 $-\sin 5$

//Binary operator followed by unary minus  
 $1+-2$

//Parenthesis and Curly braces  
 $(1+2)^{\{5-3\}}$

//Number with over 6 digits after the decimal should print correctly  
 $1.123456789123$

//Spaces and tabs should be ignored  
 $1 \quad + \quad 2$

//Nested braces  
 $1+(2+\{5*3\})$

//Order of operations with unary minus  
 $5^{-3}$

//Order of operations with unary minus  
 $-\sin 0.5$

//Long combination of operations (answer should be -7.55  
 $-5.78+-(4-2.23)+\sin(0)*\cos(1)/(1+\tan(2*\ln(-3+2*(1.23+99.111))))$