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1  #!/usr/bin/env python3
2
3  # Imports
4  import math
5  import sys
6
7  # This function calculates the surface size of a triangle.
8  # The parameters a, b and c must always be numbers.
9  # Returns a number.
10 def triangleSurface(a, b, c):
11     s = (a+b+c) / 2
12     temp = (s * (s-a) * (s-b) * (s-c))
13
14     if temp <= 0:
15         raise ValueError("Impossible triangle sides.")
16
17     res = math.sqrt(temp)
18     return res
19
20 # Bind console args to a local variable.
21 argv = sys.argv
22
23 # Linux uses the script name as the first argument, windows doesn't.
24 # To make work easier, this code removes the script name.
25 if (argv[0] == __file__):
26     argv.pop(0)
27
28 # Check if we have enough arguments (Exactly 3 are needed)
29 if len(argv) < 3:
30     print("Program needs exactly 3 arguments.", file=sys.stderr)
31     sys.exit(1)
32
33 # Convert the console arguments to integers
34 # and bind them to a, b and c.
35 # If one of the parameters can not be converted for some reason,
36 # exit with error message.
37 try:
38     a, b, c = map(int, argv)
39 except ValueError as ve:
40     print("One of the parameters could not be converted to an int.\n",
41         file=sys.stderr)
42     sys.exit(1)
43
44 # Call triangleSurface.
45 # If something goes wrong, exit with error message.
46 try:
47     result = triangleSurface(a, b, c)
48 except ValueError as ve:
49     print(str(ve), file=sys.stderr)
50     sys.exit(1)
51
52 # Finally give the result to the user.
53 print(result)

```