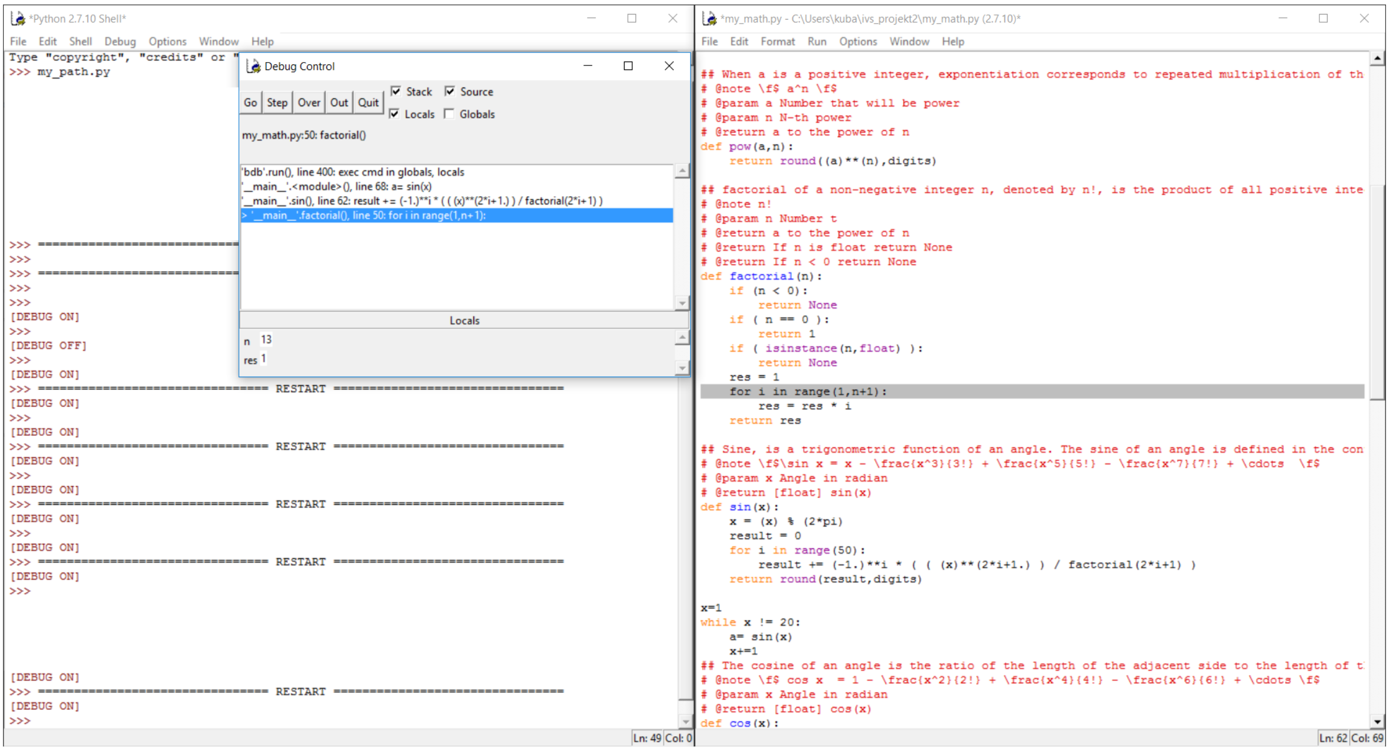
1 Debugging

In these pictures, we can see debugging factorial function.



Python 2.7.10 Shell
File Edit Shell Debug Options Window Help
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Locals
Ln: 49 Col: 0
my_math.py - C:\Users\kuba\ivs_projekt2\my_math.py (2.7.10)
File Edit Format Run Options Window Help
Ln: 62 Col: 69

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Type "copyright", "credits" or "
>>> my_path.py




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```
my_math.py:50: factorial()

'bdb'.run(), line 400: exec cmd in globals, locals
'__main__'.<module>(), line 68: a= sin(x)
'__main__'.sin(), line 62: result += (-1.)**i * ( ( (x)**(2*i+1.) ) / factorial(2*i+1) )
> '__main__'.factorial(), line 50: for i in range(1,n+1):
```

```
n   13
res 1
```

```
## When a is a positive integer, exponentiation corresponds to repeated multiplication of th
# @note \f$ a^n \f$
# @param a Number that will be power
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def pow(a,n):
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## factorial of a non-negative integer n, denoted by n!, is the product of all positive inte
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# @param n Number t
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# @return If n is float return None
# @return If n < 0 return None
def factorial(n):
    if (n < 0):
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    if ( n == 0 ):
        return 1
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    res = 1
    for i in range(1,n+1):
        res = res * i
    return res

## Sine, is a trigonometric function of an angle. The sine of an angle is defined in the con
# @note \f$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots  \f$
# @param x Angle in radian
# @return [float] sin(x)
def sin(x):
    x = (x) % (2*pi)
    result = 0
    for i in range(50):
        result += (-1.)**i * ( ( (x)**(2*i+1.) ) / factorial(2*i+1) )
    return round(result,digits)

x=1
while x != 20:
    a= sin(x)
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## The cosine of an angle is the ratio of the length of the adjacent side to the length of t
# @note \f$ cos x  = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \cdots \f$
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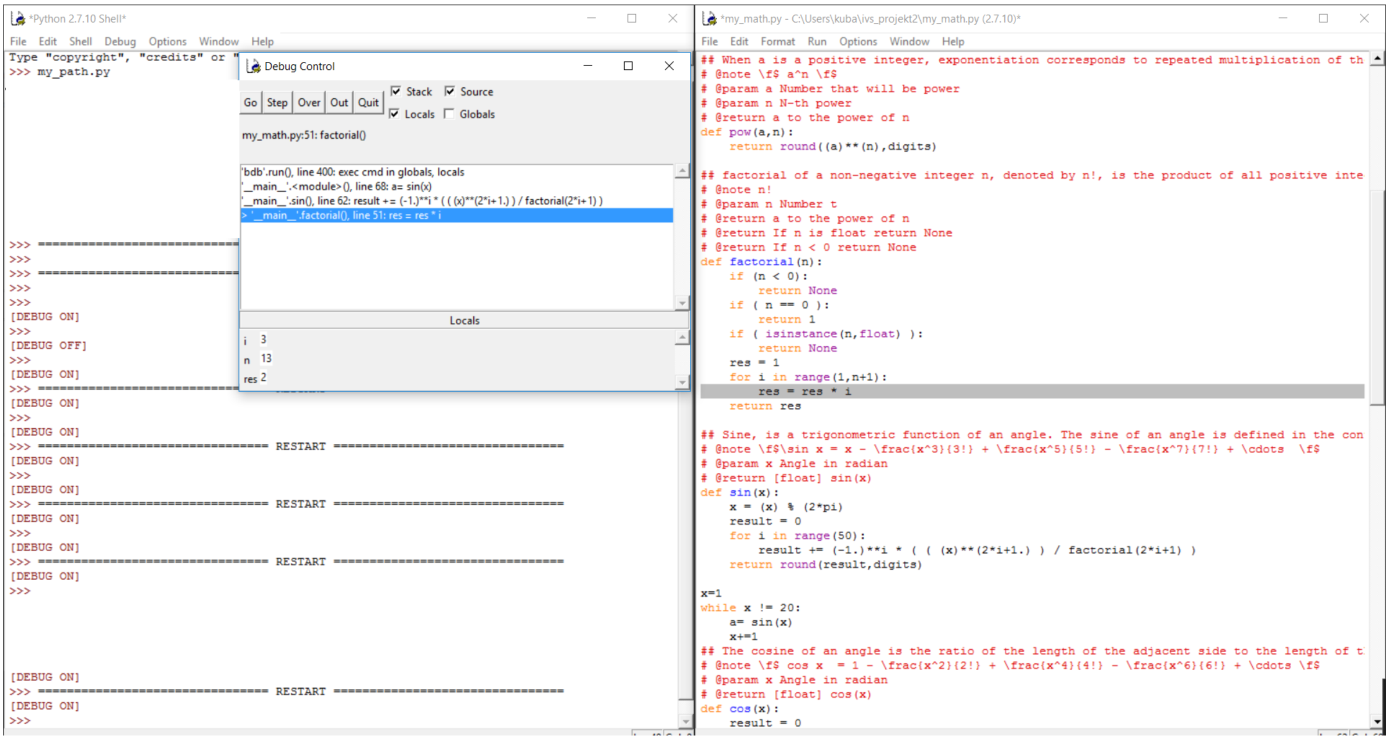
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Locals
i   3
n   13
res 2
```

```
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def sin(x):
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    result = 0
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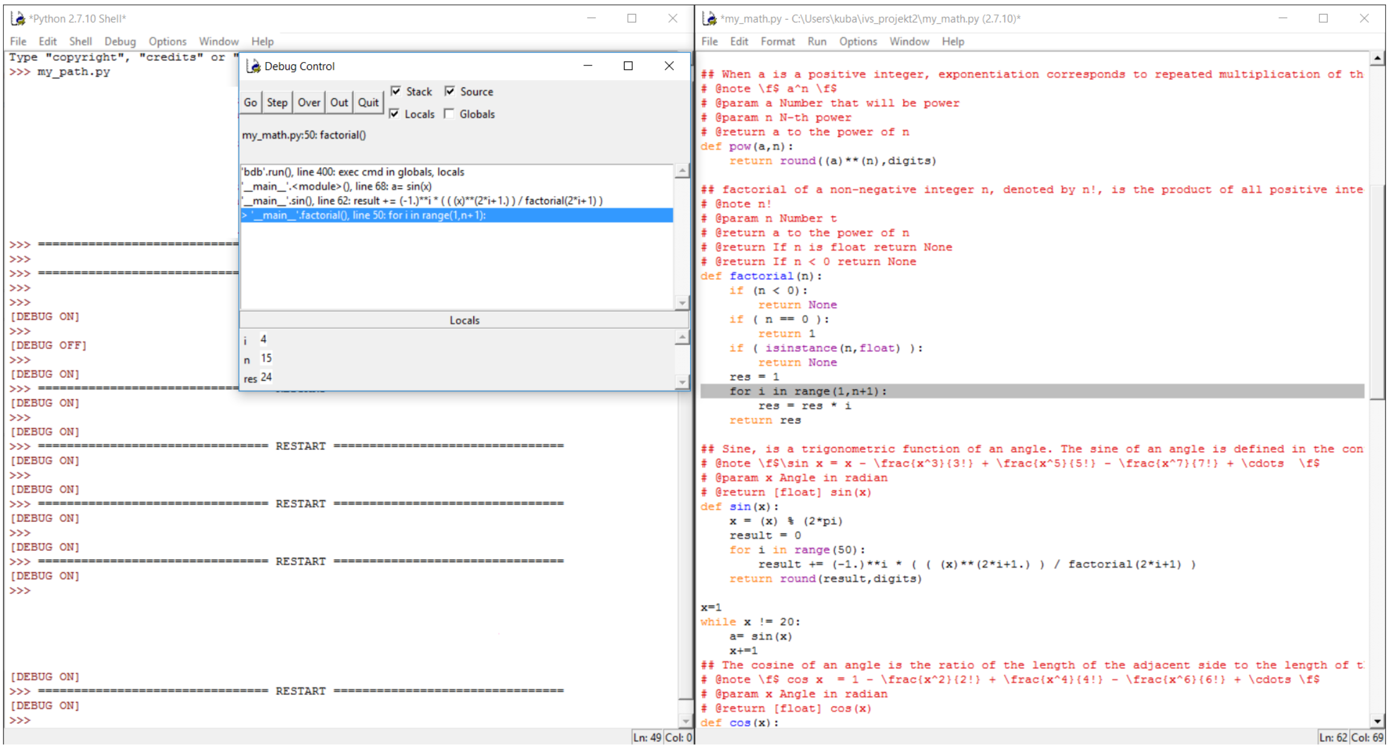
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Locals
i   4
n   15
res 24
```

```

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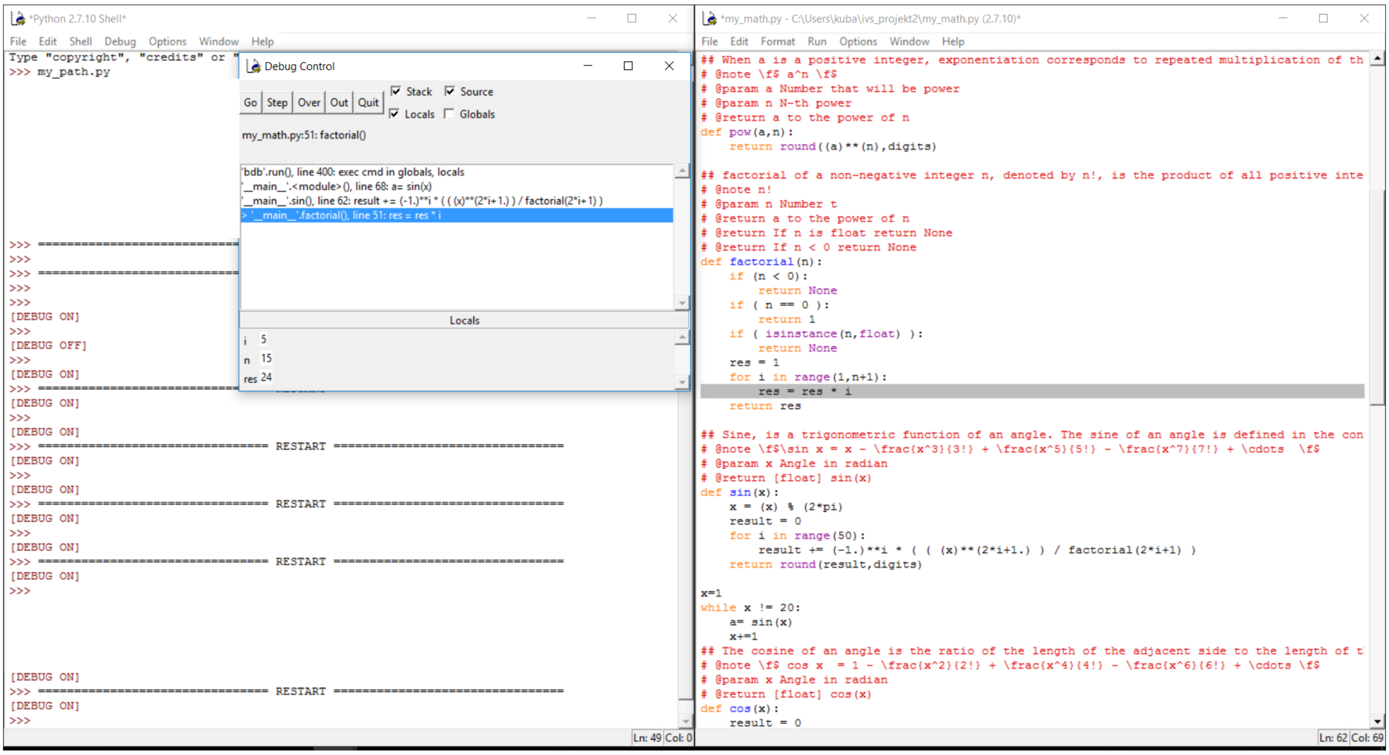
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i   5
n   15
res 24
```

```
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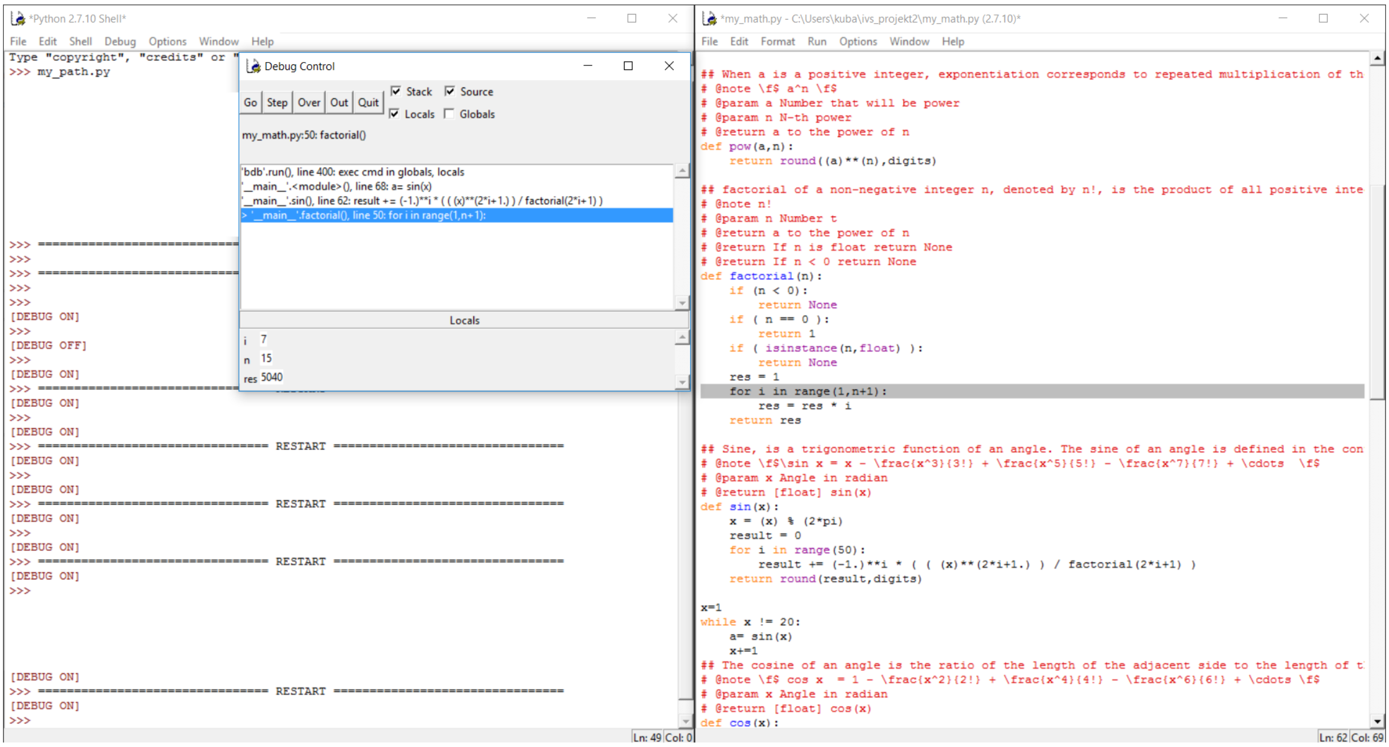
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i   7
n   15
res 5040
```

```
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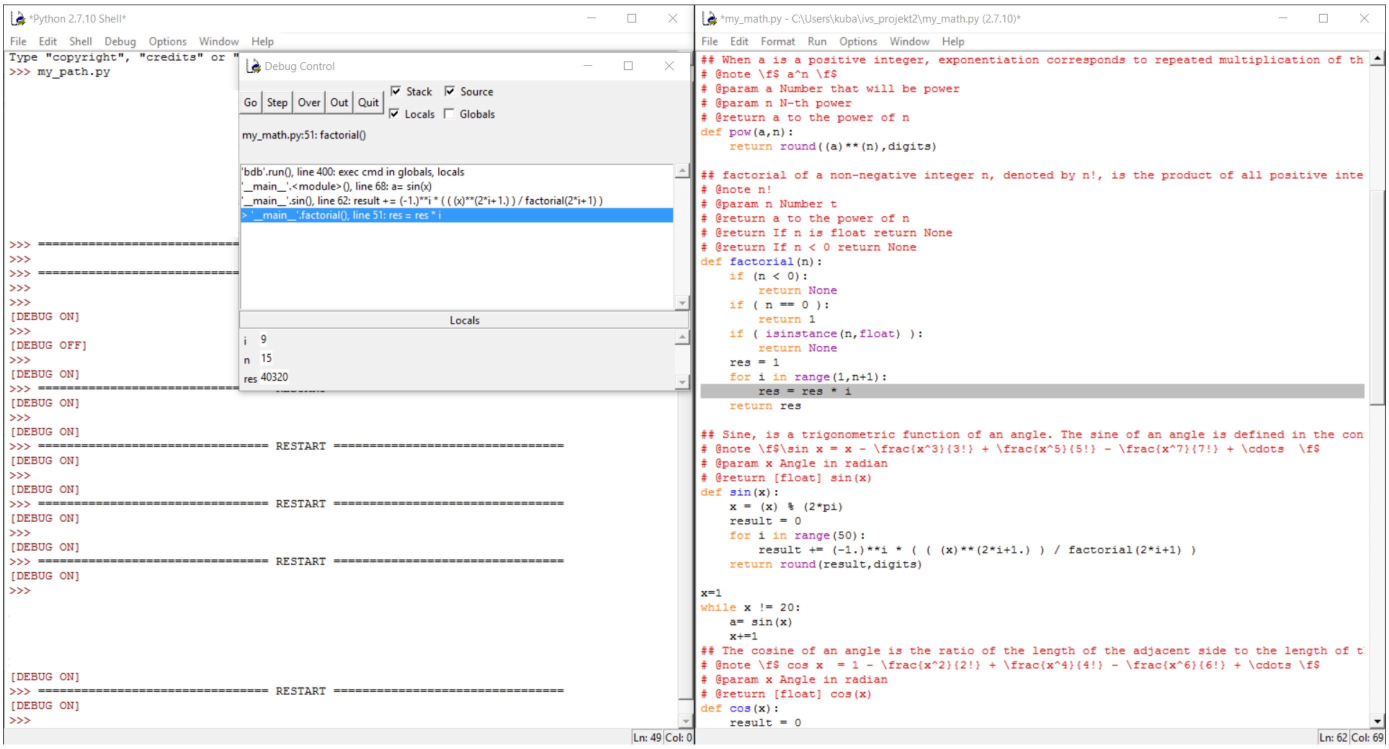
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i   9
n   15
res 40320
```

```
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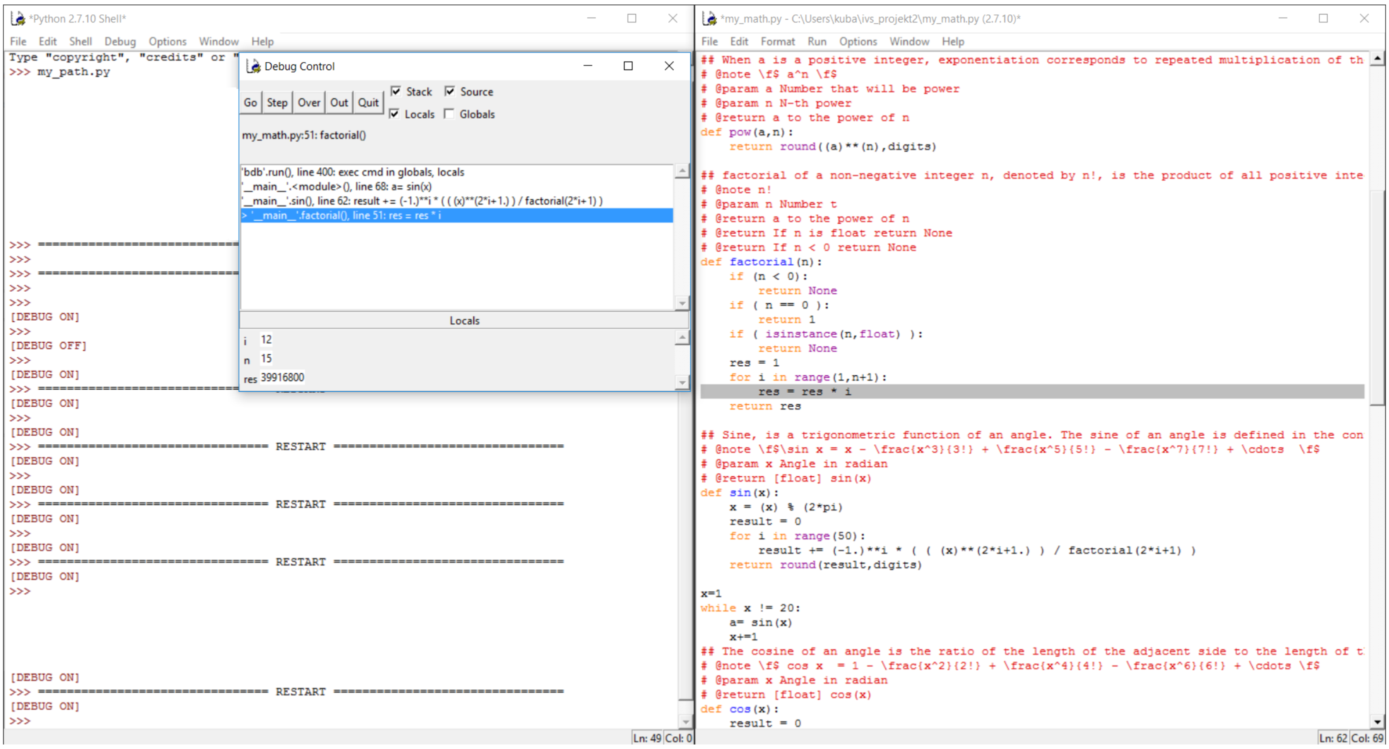
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i   12
n   15
res 39916800
```

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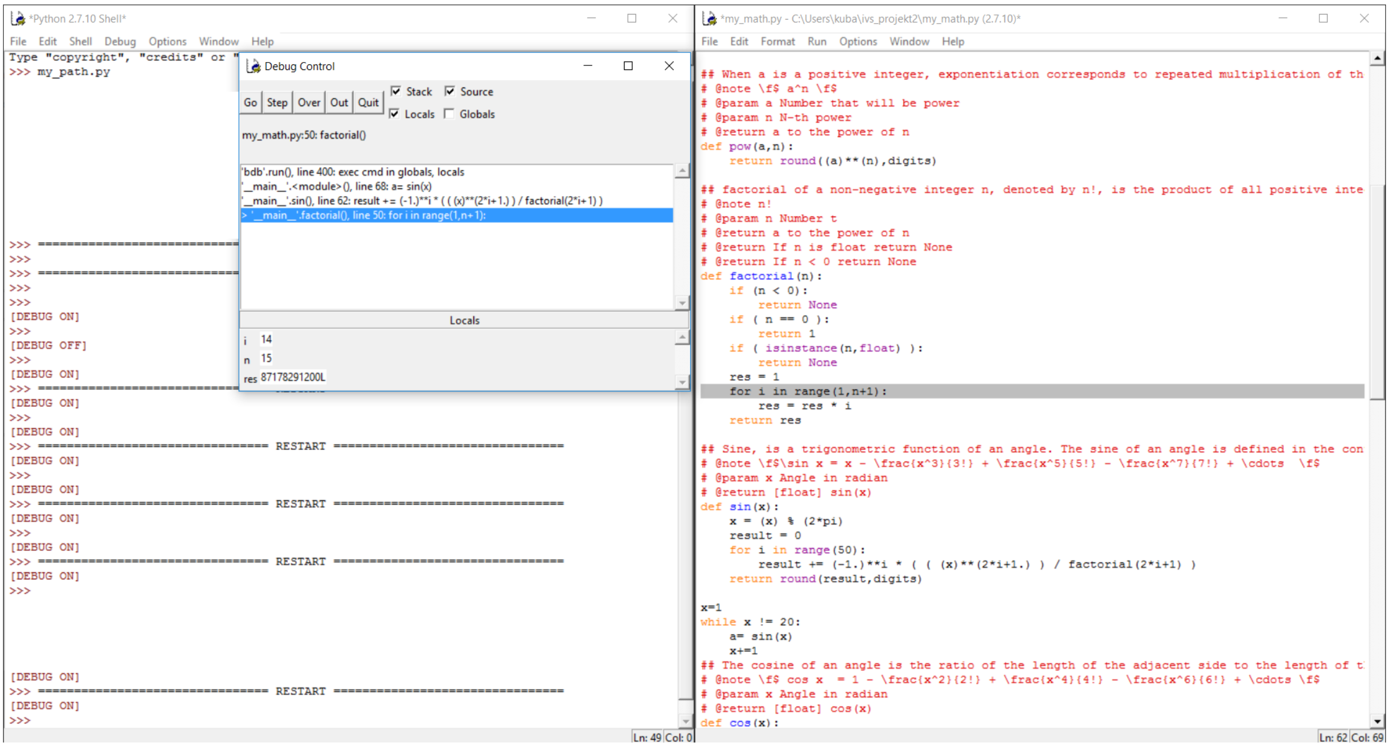

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i	14
n	15
res	87178291200L

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my_math.py - C:\Users\kuba\ivs_projekt2\my_math.py (2.7.10)
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```

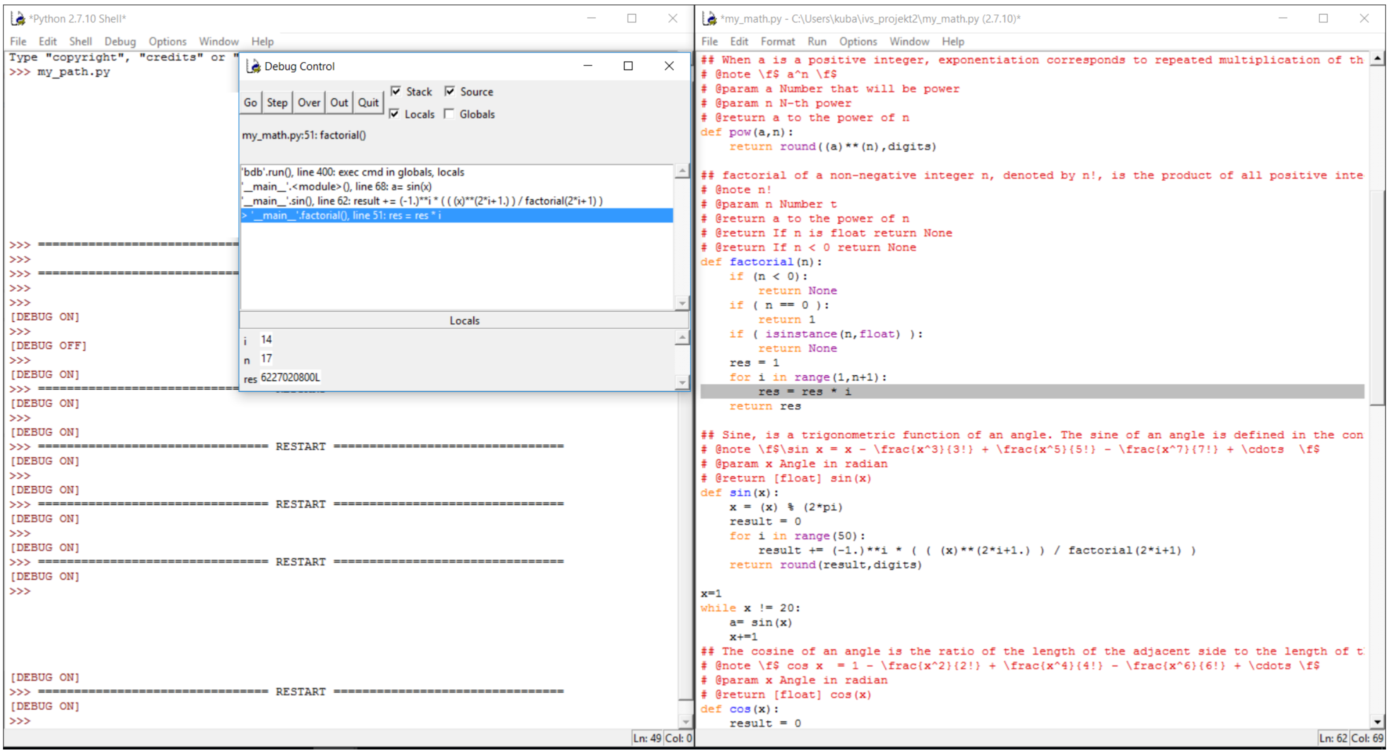
## When a is a positive integer, exponentiation corresponds to repeated multiplication of th
# @note \f$ a^n \f$
# @param a Number that will be power
# @param n N-th power
# @return a to the power of n
def pow(a,n):
    return round((a)**(n),digits)

## factorial of a non-negative integer n, denoted by n!, is the product of all positive inte
# @note n!
# @param n Number t
# @return a to the power of n
# @return If n is float return None
# @return If n < 0 return None
def factorial(n):
    if (n < 0):
        return None
    if ( n == 0 ):
        return 1
    if ( isinstance(n,float) ):
        return None
    res = 1
    for i in range(1,n+1):
        res = res * i
    return res

## Sine, is a trigonometric function of an angle. The sine of an angle is defined in the con
# @note \f$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots  \f$
# @param x Angle in radian
# @return [float] sin(x)
def sin(x):
    x = (x) % (2*pi)
    result = 0
    for i in range(50):
        result += (-1.)**i * ( ( (x)**(2*i+1.) ) / factorial(2*i+1) )
    return round(result,digits)

x=1
while x != 20:
    a= sin(x)
    x+=1
## The cosine of an angle is the ratio of the length of the adjacent side to the length of t
# @note \f$ cos x  = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \cdots \f$
# @param x Angle in radian
# @return [float] cos(x)
def cos(x):
```

Ln: 62 Col: 69



☑ Stack ☑ Source
☑ Locals □ Globals

my_math.py:51: factorial()

```
'bdb'.run(), line 400: exec cmd in globals, locals
'__main__'.<module>(), line 68: a= sin(x)
'__main__'.sin(), line 62: result += (-1.)**i * ( ( (x)**(2*i+1.) ) / factorial(2*i+1) )
> '__main__'.factorial(), line 51: res = res * i
```

i	14
n	17
res	6227020800L

```
Type "copyright", "credits" or "
>>> my_path.py

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Ln: 49 Col: 0

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File Edit Format Run Options Window Help

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Ln: 62 Col: 69