Named Parameters

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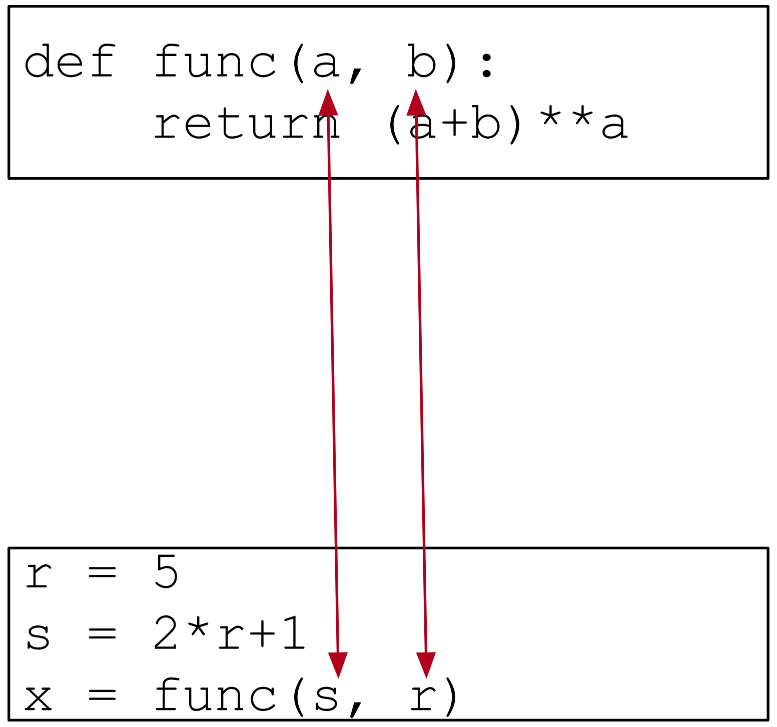
Named Parameters

- Function parameters can be passed (given) by position
  - Example:
    - `func` sets `a=s` and `b=r`
    - Returns `(s+r)**s`
    - So, `x` becomes
      - $(s+r)^s = (11+5)^{11}$
      - $= 16^{11}$
      - $= 17592186044416$



```
def func(a, b):
    return (a+b)**a
```

```
r = 5
s = 2*r+1
x = func(s, r)
```

Named Parameters

- This is difficult with functions with very long parameter lists
  - Or if the function is defined in another module and you need to look it up
- Two solutions that should both be used:
  - Use good documentation
  - Make the use of the function more intuitive

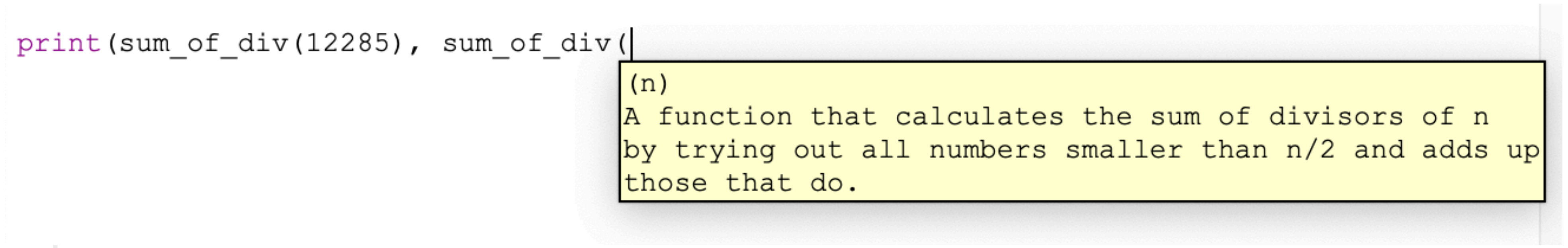
Doc Strings

- To create a doc string, put an explanation after the function definition in triple quotes.

```
def sum_of_div(n):
    """ A function that calculates the sum of divisors of n
        by trying out all numbers smaller than n/2 and adds up
        those that do."""
```

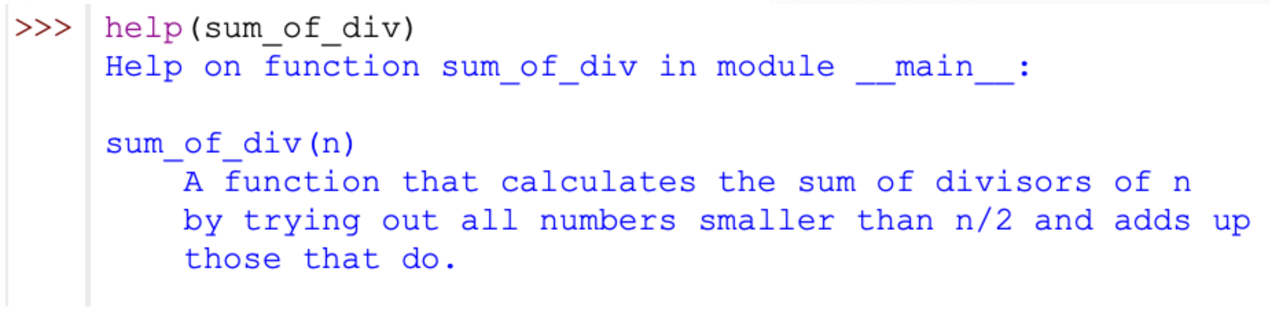
- You can access the doc string by using the help function of the editor

- Or by typing help



```
print(sum_of_div(12285), sum_of_div(
```

```
(n)
A function that calculates the sum of divisors of n
by trying out all numbers smaller than n/2 and adds up
those that do.
```

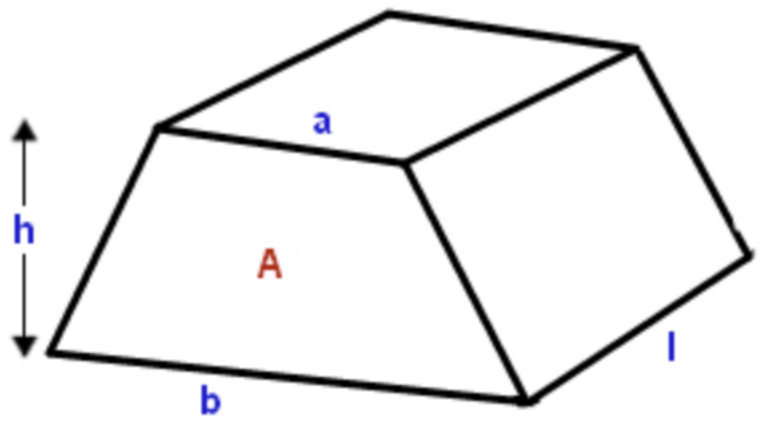


```
>>> help(sum_of_div)
    Help on function sum_of_div in module __main__:

    sum_of_div(n)
        A function that calculates the sum of divisors of n
        by trying out all numbers smaller than n/2 and adds up
        those that do.
```

Named Parameters

- Use explanatory variable names
  - Example: a trapezoidal prism
    - Given by height h, base lengths b and a and a length l



    - The formula for the volume is $\frac{1}{2}(a+b) \cdot h \cdot l$

Named Parameters

- We define the function

```
def trap_vol(baselength1, baselength2, length, height):
    """ return the volume of the trapezoid with
        baselenghts, length, and height.
    """
    return 0.5*(baselength1+baselength2)*length*height
```

Named Parameters

- When we call it, we do not use position to indicate which value is what, but we ***name*** the arguments
  - Now we can call in any order
  -
    ```
    trap_vol(height=3,
             length=10,
             baselength1=14,
             baselength2=8)
    ```
  - And the call itself is self-documenting