

Spotkanie 1

Wprowadzenie do Pythona

Typy proste

Typy złożone

```
6*7
```

```
42
```

```
-
```

```
42
```

```
zm=_  
print(zm,type(zm))
```

```
42 <class 'int'>
```

```
zm.__dir__()
```

```
['__repr__',  
 '__hash__',  
 '__getattr__',  
 '__lt__',  
 '__le__',  
 '__eq__',  
 '__ne__',  
 '__gt__',  
 '__ge__',  
 '__add__',  
 '__radd__',  
 '__sub__',  
 '__rsub__',  
 '__mul__',  
 '__rmul__',  
 '__mod__',  
 '__rmod__',  
 '__divmod__',  
 '__rdivmod__',  
 '__pow__',  
 '__rpow__',  
 '__neg__',
```

```
'__pos__',
'__abs__',
'__bool__',
'__invert__',
'__lshift__',
'__rlshift__',
'__rshift__',
'__rrshift__',
'__and__',
'__rand__',
'__xor__',
'__rxor__',
'__or__',
'__ror__',
'__int__',
'__float__',
'__floordiv__',
'__rfloordiv__',
'__truediv__',
'__rtruediv__',
'__index__',
'__new__',
'conjugate',
'bit_length',
'to_bytes',
'from_bytes',
'as_integer_ratio',
'__trunc__',
'__floor__',
'__ceil__',
'__round__',
'__getnewargs__',
'__format__',
'__sizeof__',
'real',
'imag',
'numerator',
'denominator',
'__doc__',
'__str__',
'__setattr__',
'__delattr__',
'__init__',
'__reduce_ex__',
'__reduce__',
'__subclasshook__',
'__init_subclass__',
'__dir__',
'__class__']
```

zm=7*6.4

```
print(zm, type(zm))
```

```
44.800000000000004 <class 'float'>
```

Typy złożone

```
#Lista
```

```
lista=list()  
print(lista, type(lista))
```

```
[] <class 'list'>
```

```
lista.append('Ola')  
print(lista, type(lista))
```

```
['Ola'] <class 'list'>
```

```
lista=[1,2,3,'Tola',[3,7,'Ula']]  
print(lista, type(lista))
```

```
[1, 2, 3, 'Tola', [3, 7, 'Ula']] <class 'list'>
```

```
lista[3]
```

```
'Tola'
```

```
#krotki (tuple)
```

```
zm=tuple(lista)  
print(zm, type(zm))  
zm.
```

```
(1, 2, 3, 'Tola', [3, 7, 'Ula']) <class 'tuple'>
```

```
print(zm)  
zm[4].append('XXXXXX')  
print(zm)
```

```
(1, 2, 3, 'Tola', [3, 7, 'Ula'])  
(1, 2, 3, 'Tola', [3, 7, 'Ula', 'XXXXXX'])
```

```
zm[2]=5
```

```
-----  
TypeError
```

```
Traceback (most recent call last)
```

```
Cell In[20], line 1
```

```
----> 1 zm[2]=5
```

```
TypeError: 'tuple' object does not support item assignment
```

```
# typ słownikowy
```

```
zm=dict()
```

```
print(zm,type(zm))
```

```
{ } <class 'dict'>
```

```
zm['Ula']=5600
```

```
zm[(1,2)]= 'Nie wiem co to jest'
```

```
print(zm)
```

```
{'Ula': 5600, (1, 2): 'Nie wiem co to jest'}
```

```
zm['Ula']=7200
```

```
print(zm)
```

```
{'Ula': 7200, (1, 2): 'Nie wiem co to jest'}
```

```
zm[(1,2)]
```

```
'Nie wiem co to jest'
```

```
zm[1]
```

```
-----  
KeyError
```

```
Traceback (most recent call last)
```

```
Cell In[26], line 1
```

```
----> 1 zm[1]
```

```
KeyError: 1
```

```
zm="Witam wszystkich uczestników kursu"
```

```
for nr,słowo in enumerate(zm.split(' ')):
```

```
    print(nr,słowo)
```

```
    print("=====")
```

```
print("Koniec roboty")
```

```
0 Witam
```

```
=====
1 wszystkich
=====
2 uczestników
=====
3 kursu
=====
Koniec roboty
```

```
zm1,zm2=45*7,3>8

print(zm1,type(zm1))
print(zm2,type(zm2))
```

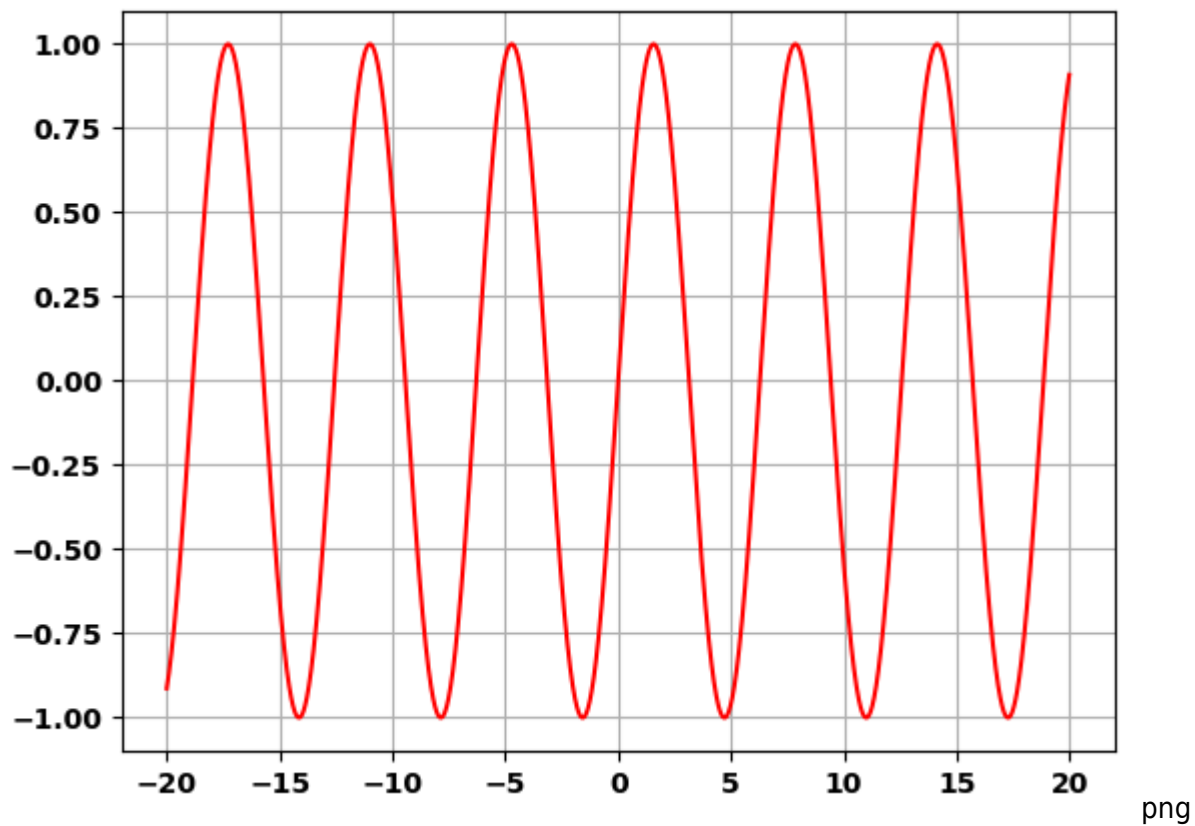
```
315 <class 'int'>
False <class 'bool'>
```

```
zm=45*7,3>8
print(zm)
```

```
(315, False)
```

```
import matplotlib.pyplot as plt
import numpy as np

x=np.arange(-20,20,0.01)
y=np.sin(x)
plt.plot(x,y,color='red')
plt.grid()
plt.show()
```



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