

1. Given `x = np.array([[1, 2], [3, 4], [2, 2], [9, 6]])`

```
print(np.sum(x))  
print(np.sum(x, axis=0))  
print(np.sum(x, axis=1))
```

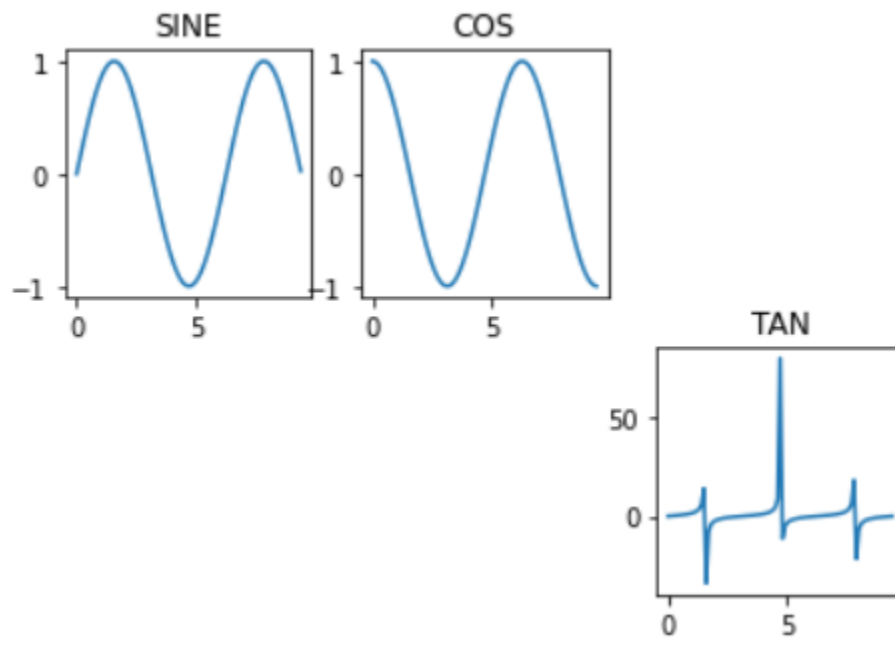
Correct ans :

```
29  
[15 14]  
[ 3  7  4 15]
```

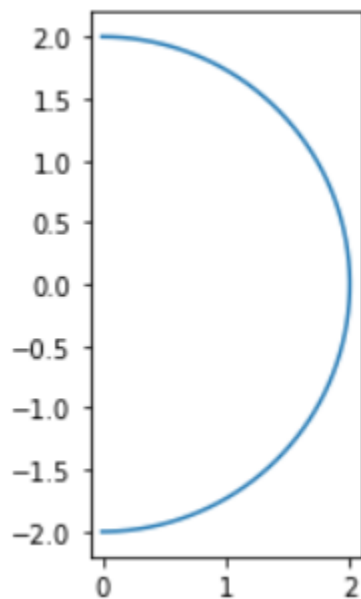
2. What is the output of the code snippet given below?

```
import numpy as np  
import matplotlib.pyplot as plt  
  
x = np.arange(0, 3*np.pi, 0.1)  
  
y1 = np.sin(x)  
y2 = np.cos(x)  
y3 = np.tan(x)  
  
plt.subplot(2,3,1)  
plt.plot(x,y1)  
plt.title('SINE')  
  
plt.subplot(2,3,2)  
plt.plot(x,y2)  
plt.title('COS')  
  
plt.subplot(2,3,6)  
plt.plot(x,y3)  
plt.title('TAN')  
  
plt.plot()
```

Correct ans :



3. Which code among the following will result in following plot?



Correct ans:

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

theta = np.linspace( 0 , 1 * np.pi , 150 )

radius = 2.0

a = radius * np.sin( theta )
b = radius * np.cos( theta )

figure, axes = plt.subplots( 1 )

axes.plot( a, b )
axes.set_aspect( 1 )

plt.show()
```

4. Which of the following is false with respect to Python Code?

```
class Student:

    def __init__(self,id,age):

        self.id=id

        self.age=age

std=Student(1,20)
```

Correct ans: Every class must have a constructor.

5. What type of error is returned by following code?

```
import pandas as pd
S1 = pd.Series(data = (31, 2, -6), index = [7, 9, 3, 2])
print(S1)
```

Correct ans: ValueError

6. What does the following NumPy code do?

```
a = np.array([1, 2, 3, 4])
b = np.expand_dims(a, axis=0)
```

Correct ans: Adds a new axis at the beginning → shape becomes (1, 4).

7. Why does the following code potentially create problems in Python?

```
def append_to_list(val, my_list=[]):
    my_list.append(val)
    return my_list
```

Correct ans: The default list persists between function calls.

8. What is the result of this NumPy broadcasting operation?

```
a = np.array([[1], [2], [3]])  
b = np.array([4, 5, 6])  
a + b
```

Correct ans:

```
array([[5, 6, 7],  
       [6, 7, 8],  
       [7, 8, 9]])
```

9. What does the following code produce?

```
import matplotlib.pyplot as plt  
  
plt.plot([1, 2, 3], [4, 5, 6])  
plt.title("My Plot")  
plt.show()  
  
plt.plot([1, 2, 3], [1, 4, 9])  
plt.show()
```

Correct ans: Two plots.

10. What will this code print?

```
funcs = []

for i in range(3):
    def f():
        return i
    funcs.append(f)

results = [func() for func in funcs]
print(results)
```

Correct ans: [2, 2, 2]