Python [solutions]

Python and R for Data Science

Data Science and Management

Exercise 1

1. Define two variables `a` and `b` with intial values `10` and `12`, respectively.
2. Define the variable `c` as the sum of `a` and `b`
3. Print `c`

In [1]:
```
# Solution goes here
```

Test your code

Run this code to test your solution:

In [2]:
```
try: assert c == (a + b) and c == 22 and not print("Test passed")
except: print('Test failed')
```

```
Test failed
```

Solution

In [3]:
```
a = 10
b = 12
c = a + b
print("The sum is", c)

# test
assert c == (a + b) and c == 22 and not print("Test passed")
```

```
The sum is 22
Test passed
```

Exercise 2

1. Compute the area of a triangle with:
    - `base`: `5.0`
    - `height`: `7.5`
2. Store the result in the variable `area`
3. Print the area

In [4]:
```
# Solution goes here
```

Test your code

Run this code to test your solution:

In [5]:
```
try: assert area == 17.5 and not print("Test passed")
except: print('Test failed')
```

```
Test failed
```

Solution

In [6]:

```
base = 5.0
height = 7.0
area = 0.5 * base * height
print("The area is", area)

# test
assert area == 17.5 and not print("Test passed")
```

```
The area is 17.5
Test passed
```

Exercise 3

1. Compute the volume of a cube with `side` equal to `8.0`
2. Store the result in the variable `volume`
3. Print the area

In [7]:
```
# Solution goes here
```

Test your code

Run this code to test your solution:

In [8]:
```
try: assert volume == 512 and not print("Test passed")
except: print('Test failed')
```

```
Test failed
```

Solution

In [9]:
```
side = 8.0
volume = side * side * side
volume = side ** 3 # alternative
print("The volume is", volume)

# test
assert volume == 512 and not print("Test passed")
```

```
The volume is 512.0
Test passed
```

Exercise 4

1. Define:
    - `x` equal to `10`
    - `y` equal to `20`
2. Compute the result of:

$$(x - 4)^3 + 5$$

$$4 \cdot (y \mod 3)$$

3. Store the result in the variable `result`
4. Print the result

In [10]:
```
# Solution goes here
```

Test your code

Run this code to test your solution:

In [11]:
```
try: assert result == 27.625 and not print("Test passed")
except: print('Test failed')
```

```
Test failed
```

Solution

In [12]:
```
x = 10
y = 20
result = ((x - 4)** 3 + 5) / (4 * (y % 3))
print("The result is", result)

# test
assert result == 27.625 and not print("Test passed")
```

```
The result is 27.625
Test passed
```

Exercise 5

1. Define the string `s` equal to `Bazinga!`
2. Count the number of characters in `s` and store it in the variable `length`
3. Print `length`

In [13]:
```
# Solution goes here
```

Test your code

Run this code to test your solution:

In [14]:
```
try: assert length == 8 and not print("Test passed")
except: print('Test failed')
```

```
Test failed
```

Solution

In [15]:
```
s = "Bazinga!"
length = len(s)
print("The length is", length)

# test
assert length == 8 and not print("Test passed")
```

```
The length is 8
Test passed
```