

Name: _____

1. Variable Tracing

For each of the following questions, write the output without running the code.

a. What will the following code print?

```
x = 4
y = 2

x = x + y
y = x
x = y - 1

print(x)
print(y)
```

b. What will the following code print?

```
first = "Jam"
second = "Code"

third = first
first = second
second = third

print(first)
print(second)
print(third)
```

2. Printing and Loops

a. What will the following code print?

```
score = 8

if score > 10:
    print("A")
elif score > 5:
    print("B")
else:
    print("C")

if score % 2 == 0:
    print("Even")
else:
    print("Odd")
```

b. What will the following code print?

```
for i in range(5, 9):
    if i % 2 == 0:
        print(i)
```

c. What will the following code print?

```
animals = ["cat", "dog", "bird", "fish"]

for i in range(len(animals)):
    print("i:" + str(i) + ", " + animals[i] + "!")
```

3. Function Calls

For each of the following questions, write **everything printed to the console**, in order, without running the code.

```
def double(x):  
    print(x)  
    return x * 2  
  
def square(x):  
    print(x * x)  
    return double(x + 1)
```

a. What will the following code print?

```
double(3)
```

b. What will the following code print?

```
print(double(3))
```

c. What will the following code print?

```
print(square(2))
```

4. Adding Odds

Complete the `add_odds` function that takes a positive integer `n` and returns the sum of all odd numbers from 1 through `n` (inclusive).

Examples:

- `add_odds(7)` returns 16 because $1 + 3 + 5 + 7 = 16$.
- `add_odds(10)` returns 25 because $1 + 3 + 5 + 7 + 9 = 25$.

```
def add_odds(_____):  
  
    total = _____  
  
    for _____ in _____:  
  
        if _____:  
  
            _____ += _____  
  
    return _____
```

5. Average List

Complete the `average` function that takes a list of numbers and returns the average of all the values in the list. You may assume that the list contains at least one number.

Examples:

- `average([2, 4, 6, 8])` returns 5.0.
- `average([10, 20])` returns 15.0.
- `average([7])` returns 7.0.

```
def average(numbers):  
  
    total = _____  
  
    count = _____  
  
    for _____ in _____:  
  
        _____ += _____  
  
        _____ += _____  
  
    return _____
```

6. All Positives

Write a function called `all_positives` that takes a list of integers as a parameter and returns whether all of the values in the list are positive numbers. The function should return `True` if every value in the list is greater than 0, and `False` otherwise.

Examples:

- `all_positives([3, 19, 42, 7, 1, 12])` returns `True`
- `all_positives([5, 18, 0, 11, 27, 9])` returns `False`
- `all_positives([1, 2, 3, 4, 5, 6, -7])` returns `False`

Part I: Pseudocode

Before writing your Python code, describe the steps your function should follow using *pseudocode*.

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Part II: Python Code

Now, implement your solution in Python.

This image shows a blank sheet of white paper designed for handwriting practice. It features ten horizontal dashed lines spaced evenly down the page. A solid vertical line runs along the left side, creating a narrow margin. The paper is otherwise empty, with no text or other markings.