

1. What is the output of the following code?

```
result = 0
nums = [0,2,3,1]
for num in nums:
    result = num * result + 3

print(f"result = {result}")
```

Output:

result = 33

scratch

result

0

$$0 * 0 + 3 = 3$$

$$2 * 3 + 3 = 9$$

$$3 * 9 + 3 = 30$$

$$1 * 30 + 3 = 33$$

2. What is the output of the following code?

```
num = 1
while (num * num <= 50):
    print(num)
    num = num + 2

print(f"num = {num}")
```

Output:

1

3

5

7

num = 9

scratch

num

$$1^2 = 1 \leq 50$$

$$3^2 = 9 \leq 50$$

$$5^2 = 25 \leq 50$$

$$7^2 = 49 \leq 50$$

$$9^2 = 81 \not\leq 50$$

3. Write Python code that classifies a list of temperature readings into three categories: "Cold", "Moderate", and "Hot". Use the following criteria for classification:

- (a) Temperatures below 10°C are considered "Cold".
- (b) Temperatures between 10°C and 25°C (inclusive) are considered "Moderate".
- (c) Temperatures above 25°C are considered "Hot".

Your code should take a list like `temperatures = [2, 15, 20, 30, -5, 25, 28]`, **loop** through the list, and print the classification of each temperature. Just write the code – no need to write the output.

```
for temp in temperatures:
    if temp > 25:
        print("Hot")
    elif temp >= 10:
        print("Moderate")
    else:
        print("Cold")
```