

Iteration — Handwritten Loop FRQ

Name: _____ Period: _____ Date: _____

AP objective: CON-2.C/2.G Points: 25

Why handwritten, in class: this replaces a typed task AI can complete. Work every item by hand and **show all your steps** — no AI, phones, or notes. A correct answer with no work earns half credit; the work is what proves it's yours.

Complete each item by hand — show all work

1. Trace this nested loop: state total inner executions and the final value of sum — 10 pts

GIVEN

```
int sum = 0;
for (int i = 0; i < 3; i++)
    for (int j = 0; j < 4; j++)
        sum = sum + 1;
```

2. Write a method `countVowels(String s)` that returns how many vowels the String has — 10 pts

Use `i < s.length()` — the classic off-by-one is `<=` .

3. Find and fix the bug that makes this loop run forever (circle it, write the fix) — 5 pts

GIVEN

```
int i = 0;
while (i < 10) {
    System.out.println(i);
}
```

Oral defense (teacher — 60 sec)

Student answers one cold question aloud before grading. A student who did their own work can answer instantly; a copied one can't. Strong OK Weak

Scoring (25 pts)

Criterion	Pts	Earned
Trace + count correct	10	
Vowel-counter correct bounds	10	
Infinite loop fixed	5	
<i>Gate:</i> passed oral defense (can explain the work aloud)	req'd	<input type="radio"/> Y <input type="radio"/> N
Total	25	

Integrity gate: if the student can't explain their work aloud, cap the score at 50% and require a resubmit.