

Answer Keys & Grading Notes

Objective-aligned exemplars, full-credit models, and the mistakes to watch for. **Do not distribute to students.**

True-up step: the objective sections below are built from the AP learning objectives. Paste your real Code.org prompts into chat and I'll fill exact question-by-question keys. The *AI-Proof Worked Answers* section matches the handwritten assignment exactly.

A · Nested-loop iteration counts

Loop	Total inner executions
for i in 0..<3, for j in 0..<4	$3 \times 4 = 12$
for i in 0..<n, for j in 0..<i	$0+1+\dots+(n-1) = n(n-1)/2$
for i=0;i<5;i++ (single)	5

Common mistakes: Adding instead of multiplying independent loops; forgetting the inner loop depends on i (triangular count); off-by-one from < vs <=.

B · String traversal

Full-credit exemplar: `for (int i = 0; i < s.length(); i++) { char c = s.charAt(i); ... }` — full credit uses < length() (not <=) and processes each char.

Common mistakes: Using <= s.length() (index out of bounds); starting at 1; calling charAt outside the loop bounds.

AI-Proof Worked Answers — Iteration — Handwritten Loop FRQ

Grade the handwritten sheet against these. Item numbers match the assignment.

Item	Correct answer
1) inner executions	$3 \times 4 = 12$
1) final value of sum	12
2) countVowels	<pre>for(int i=0;i<s.length();i++) if("aeiouAEIOU".indexOf(s.charAt(i))>=0) count++;</pre>
3) infinite-loop fix	add <code>i++</code> (or <code>i = i + 1</code>) inside the while body