

Algorithm Analysis — Handwritten Brief

Name: _____ Period: _____ Date: _____

AP objective: AAP-4.A/4.B Points: 30

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. Write pseudocode for this task using sequence, selection, and iteration — 10 pts

GIVEN

TASK: Go through a list of test scores and count how many are 70 or above, then report that count.

2. Compare linear vs. binary search for a specific dataset you choose — 10 pts

Pick a real dataset (your music library, a class roster) and say why the size/sorting matters.

3. Explain reasonable vs. unreasonable time with an example — 6 pts

4. Trace binary search on this sorted list for target = 71; show each midpoint you check — 4 pts

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index: 0 1 2 3 4 5 6 7
value: [3, 8, 15, 23, 42, 56, 71, 90]
target = 71

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 (30 pts)

Criterion	Pts	Earned
Pseudocode correct	10	
Search comparison + real dataset	10	
Efficiency explained	6	
Binary trace	4	
<i>Gate:</i> passed oral defense (can explain the work aloud)	req'd	<input type="radio"/> Y <input type="radio"/> N
Total	30	

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