

ArrayList — Handwritten FRQ

Name: _____ Period: _____ Date: _____

AP objective: VAR-2.F/2.H 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. Trace these operations; write the full list contents after each line — 10 pts

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```
ArrayList<Integer> list = new ArrayList<Integer>();  
list.add(3); list.add(7); list.add(5);  
list.add(1, 9);  
list.remove(0);  
list.set(1, 2);
```

2. Write `removeSmall(ArrayList<Integer> list, int cutoff)` that removes every element `< cutoff` — 14 pts

Iterate backward or don't increment after removing — show you understand the shift.

3. Explain why removing inside a for-each loop throws an exception — 6 pts

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
Trace correct after each op	10	
Remove method handles shifting	14	
for-each removal explained	6	
<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.