

## PA 1 Grading Policy

1. The grading policy is defined in the table below. For each problem, public test cases and their correct outputs are provided below. There will also be hidden test cases.
2. For Problems 1 and 3, the **runtime** of your programs will be considered for grading, serving as an indicator on whether you implemented the required enhancements (e.g., recursion vs. iteration). The following runtimes are provided for your reference, based on the solutions developed by the TAs and measured on their laptops (cf. machine spec at the end of this document). Please note that you **will not lose points** merely because your program runs slower than these reference runtimes. (We will check your solutions manually if needed.)
3. You are highly recommended **NOT to modify** any code outside the **###TODO###** blocks to avoid grading issues.

### Grading & Runtime (Obtained on TA's Laptop)

	Points	Each	Public	Hidden	Case 1	Case 2	Case 3
p1_1	15	3	3	2	0.162 s	0.365 s	33.855 s
p1_2	15	3	3	2	0.165 s	0.154 s	0.154 s
p2	30	3	3	7	-	-	-
p3	30	3	3	7	0.161 s	0.174 s	0.623 s
p3_bonus	10	2	3	2	0.161 s	0.174 s	0.178 s

### Public Test Cases

#### Problem 1\_1 & 1\_2

- **Case 1:** Input:  $n = 8 \rightarrow$  Output: 21
- **Case 2:** Input:  $n = 12 \rightarrow$  Output: 144
- **Case 3:** Input:  $n = 25 \rightarrow$  Output: 75025

#### Problem 2

- **Case 1:** Input:  $A = [-2, 1, -3, 4, -1, 2, 1, -5, 4], len = 9 \rightarrow$  Output: 6
- **Case 2:** Input:  $A = [5, -2, 3, -1, 2], len = 5 \rightarrow$  Output: 7
- **Case 3:** Input:  $A = [829, -89, 202, 766, -325, -408, 440, 851, 921, 315, -37, -43, 644, 654, 533, 844, -393, 995, 185, 68, 587, 354, 697, 654, 256, 805, 829, -317, 130, 392, 873, 922, 230, 428, -59, 614, 300, -498, -61, 197, 37, 386, 119, 7, -394, -47, 477, -235, 467, 456], len = 50 \rightarrow$  Output: 15558

#### Problem 3 & 3\_bonus

- **Case 1:** Input:  $A = [2, 2, 3, 5]$ ,  $\text{len} = 4$ ,  $\text{target} = 4 \rightarrow$  Output:  $t0 = 0$ ,  $t1 = 1$
- **Case 2:** Input:  $A = [1, 2, 3, 4]$ ,  $\text{len} = 4$ ,  $\text{target} = 8 \rightarrow$  Output:  $t0 = -1$ ,  $t1 = -1$
- **Case 3:** Input:  $A = [70, 30, 41, 35, 86, 18, 26, 57, 43, 7, 8, 44, 82, 17, 78, 12, 20, 6, 67, 77, 65, 34, 96, 4, 25, 33, 59, 62, 79, 69, 68, 91, 39, 48, 24, 83, 97, 19, 9, 32, 14, 63, 49, 76, 72, 10, 47, 29, 90, 31, 15, 52, 42, 80, 87, 98, 22, 92, 38, 5, 53, 51, 13, 74, 3, 46, 50, 95, 94, 75, 40, 21, 85, 37, 99, 54, 88, 1, 0, 58]$ ,  $\text{len} = 80$ ,  $\text{target} = 3 \rightarrow$  Output:  $t0 = 64$ ,  $t1 = 78$

#### Machine Specification of TA's Laptop

Item	Specification
CPU	AMD Ryzen 7 PRO 8840U (8 cores / 16 threads)
RAM	32 GB DDR5
OS	Ubuntu 24.04 LTS (Linux 6.11)