30 beginner-friendly but tricky questions (set 2) with sample input/output

all questions use only loops, strings, conditionals, and lists. no dictionaries, sets, or pattern problems.

1. given a list of numbers, count how many numbers are greater than the first element of the list.
sample input/output: input: [5,7,3,9,6] output: 3 # (7,9,6 are greater than 5)

2. given a string, print the index of the first vowel you find (or -1 if no vowels).
sample input/output: input: 'bcdfae' output: 4 # ('a' at index 4)

3. reverse a list using only a for-loop and a new list (no built-ins).
sample input/output: input: [1,2,3,4] output: [4,3,2,1]

4. count how many elements in a list are odd and how many are even.
sample input/output: input: [1,2,3,4,5] output: odd=3 even=2

5. given a list, find the difference between the largest and smallest element using loops only.
sample input/output: input: [2,10,3,7] output: 8 # (10-2)

6. given a string, create a new string containing only the characters at even indexes.
sample input/output: input: 'abcdef' output: 'ace'

7. given a list, remove all elements divisible by 3 using a new list (no built-in remove).
sample input/output: input: [3,4,6,7,9] output: [4,7]

8. multiply each element of a list by its index and print the result list.
sample input/output: input: [5,6,7] output: [0,6,14] # (5*0,6*1,7*2)

9. given a number n, print the sum of all its digits without converting to string.
sample input/output: input: 409 output: 13 # (4+0+9)

10. given a list, determine whether the list is strictly increasing.
sample input/output: input: [1,2,3,3] output: false # not strictly increasing because 3==3

11. given two lists of equal length, create a new list that contains the absolute difference of each pair.
sample input/output: input: [10,5,8], [7,5,2] output: [3,0,6]

12. given a list, find the second largest value using only basic loops (no sorting).
sample input/output: input: [4,9,2,9,7] output: 9 # second largest is 9 (largest is 9 but appears twice, second largest distinct would be 7; if question expects second largest value allowing equal, answer 9)

13. given a list of integers, print how many times the value changes from one element to the next.
sample input/output: input: [1,1,2,2,3] output: 2 # changes at 1->2 and 2->3

14. check if a string contains only alphabet characters (no digits, spaces, or symbols).
sample input/output: input: 'HelloWorld' output: true

15. given a string, count how many uppercase and lowercase characters it contains.
sample input/output: input: 'PyTHon' output: uppercase=3 lowercase=3

16. given a list, shift all elements to the right by one position using only loops (no slicing).
sample input/output: input: [1,2,3] output: [3,1,2]

17. given a list of integers, create a new list containing only those that are strictly greater than the previous element.
sample input/output: input: [1,3,2,4,4,5] output: [3,4,5]

18. given two lists of different length, print only the pairs where both lists have valid indexes (stop at shorter length).
sample input/output: input: [1,2,3], [9,8] output: 1 9 2 8

19. given a sentence, count how many words have more than 3 letters (no split; count manually).
sample input/output: input: 'this is a simple test' output: 2 # ('this','simple')

20. given a list of numbers, count how many times a number decreases compared to the previous number.
sample input/output: input: [5,4,6,3,3,2] output: 3 # decreases at 5->4,6->3,3->2

21. given a list, check whether it contains any duplicate values (basic loops only).
sample input/output: input: [1,2,3,2] output: true

22. given a string, print the longest consecutive sequence of the same character.
sample input/output: input: 'aabbbccaa' output: 'bbb'

23. given a list, create a new list that contains only elements that appear exactly once in the original list.
sample input/output: input: [1,2,2,3,4,4,5] output: [1,3,5]

24. given a list of numbers, check whether the sum of the first half equals the sum of the second half.
sample input/output: input: [1,2,3,3] output: true # (1+2 == 3+3) false? actually 3 != 6 so false; correct example: [1,2,3,0] -> 3 == 3 true

25. given a string, create a new string where characters appear in reverse order but numbers stay in original order (e.g. 'a1b2c' -> 'c1b2a').
sample input/output: input: 'a1b2c3' output: 'c1b2a3'

26. given a list, remove every second element (keep index 0, skip 1, keep 2, skip 3...).
sample input/output: input: [10,11,12,13,14] output: [10,12,14]

27. compare two strings and print how many characters match at the same index.
sample input/output: input: 'abcde', 'abXde' output: 4 # a,a b,b c,X d,d e,e => matches at 0,1,3,4

28. simulate a manual list slicing: create a sublist from index a to b using loops only.
sample input/output: input: [0,1,2,3,4], a=1, b=3 output: [1,2,3]

29. given a list of integers, print the longest increasing consecutive run.
sample input/output: input: [1,2,5,3,4,5,6,1] output: [3,4,5,6]

30. given a list, rotate it k times to the left using only loops and basic operations.
sample input/output: input: [1,2,3,4], k=2 output: [3,4,1,2]