Name:_____ List Worksheet

Creating a List, Assigning Values, Evaluating Length, Accessing Index

Consider the following snippet from the **AP Exam Reference Sheet**:

Instruction	Explanation
Text: `aList ← [value1, value2, value3, ...]` Block: aList ← value1, value2, value3	Creates a new list that contains the values `value1`, `value2`, `value3`, and `...` at indices `1`, `2`, `3`, and `...` respectively and assigns it to `aList`.
Text: `LENGTH(aList)` Block: LENGTH aList	Evaluates to the number of elements in `aList`.
Text: `aList[i]` Block: aList i	Accesses the element of `aList` at index `i`. The first element of `aList` is at index `1` and is accessed using the notation `aList[1]`.

Consider the following code that creates a list called fruits:

```
fruits ← [ "apples" , "bananas" , "oranges" , "peach"]
```

1. Write the result of executing each code segment:

Code	Output
`DISPLAY ( fruits [ 2 ] )`	*bananas*
`DISPLAY ( fruits [ 3 ] )`	
DISPLAY fruits 4	
`DISPLAY( LENGTH( fruits ) )`	
`myChores ← [ ]` `DISPLAY ( LENGTH ( myChores) )`	
names ← "Berkowitz", "Knopf", "Kabanakis" DISPLAY LENGTH names	

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Inserting and Appending Items in a List

Consider the following snippet from the AP Exam Reference Sheet:

Instruction	Explanation

Text:
`INSERT(aList, i, value)`
Block:
`INSERT aList, i, value`
	Any values in `aList` at indices greater than or equal to `i` are shifted one position to the right. The length of the list is increased by 1, and `value` is placed at index `i` in `aList`.

Text:
`APPEND(aList, value)`
Block:
`APPEND aList, value`
	The length of `aList` is increased by 1, and `value` is placed at the end of `aList`.

2. Look at the chart above, what is the difference between **`INSERT`** and **`APPEND`**?

3. The **INSERT** method takes 3 variables as input. Input variables are called **parameters.** What do each of the parameters represent?

aList _____ i _____ value _____

4. Write out what each list looks like after executing the code segment on the left:

Code	List Contents
`weather ← ["sun", "rain"]` `APPEND ( weather, "snow" )`	*`["sun", "rain", "snow"]`*
`ages ← 78, 65, 22, 44` `INSERT ages, 2, 14`	
`groceries ← "eggs" , "cereal" , "rice"` `INSERT groceries, 3 , "milk"`	

`numbers ← [ 4, 3, 9 ]`
`INSERT ( numbers , 1 , 22)`
`APPEND( numbers , -3 )`	

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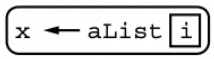
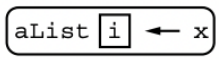
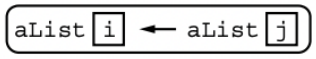
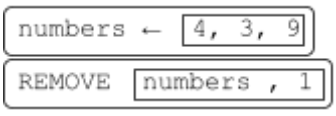
Various Assignments and Removing Items in a List

Consider the following snippet from the AP Exam Reference Sheet:

Instruction	Explanation
Text: `x ← aList[i]` Block: 	Assigns the value of `aList[i]` to the variable `x`.
Text: `aList[i] ← x` Block: 	Assigns the value of `x` to `aList[i]`.
Text: `aList[i] ← aList[j]` Block: 	Assigns the value of `aList[j]` to `aList[i]`.
Text: `REMOVE(aList, i)` Block: 	Removes the item at index `i` in `aList` and shifts to the left any values at indices greater than `i`. The length of `aList` is decreased by 1.

5. Write out what each list looks like after executing the code segment on the left:

Code	List Contents
`drinks ← ["milk", "soda", "tea"]` `drinks [ 2 ] ← "water"`	*`["milk", "water", "tea"]`*
`letters ← ["a", "z", "k"]` `letters [ 1 ] ← "b"`	
	

`colors ← ["blue", "pink", "green"]`
`REMOVE (colors , 2 )`
`colors [ 1 ] ← "orange"`
`colors [ 2 ] ← "yellow"`	

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PRACTICE QUESTIONS

1. Consider the following code segment:

```
numberList ← [4, 3, 2, 7]
X ← numberList[1] + numberList[3]
DISPLAY(X)
```

What will be displayed after executing the code segment?

A. 6
B. 4
C. 7
D. 9

2. Consider the following code segment:

```
firstList ← ["a", "b", "c"]
secondList ← ["d", "e"]
thirdList ← []
thirdList ← firstList
```

What are the contents of `thirdList` after the code segment is executed?

A. `[]`
B. `["a", "b", "c"]`
C. `["d", "e"]`
D. `["a", "b", "c", "d", "e"]`

3. Consider the following code segment:

```
myList ← [4, 5, 3, 6]
APPEND ( numbersList , 1 )
X ← numbersList[2]
Y ← numbersList[5]
Z ← X + Y
DISPLAY (Z)
```

What displays after the code segment is executed?

A. 7
B. 11
C. 10
D. 6