

Algorithm Workbench

1. Write a statement that creates a list with the following strings: 'Einstein', 'Newton', 'Copernicus', and 'Kepler'.
2. Assume `names` references a list. Write a for loop that displays each element of the list.
3. Assume the list `numbers1` has 100 elements, and `numbers2` is an empty list. Write code that copies the values in `numbers1` to `numbers2`.
4. Draw a flowchart showing the general logic for totaling the values in a list.
5. Write a function that accepts a list as an argument (assume the list contains integers) and returns the total of the values in the list.
6. Assume the `names` variable references a list of strings. Write code that determines whether 'Ruby' is in the `names` list. If it is, display the message 'Hello Ruby'. Otherwise, display the message 'No Ruby'.
7. What will the following code print?

```
list1 = [40, 50, 60]
list2 = [10, 20, 30]
list3 = list1 + list2
print(list3)
```
8. Write a statement that creates a two-dimensional list with 5 rows and 3 columns. Then write nested loops that get an integer value from the user for each element in the list.

Programming Exercises**1. Total Sales**

Design a program that asks the user to enter a store's sales for each day of the week. The amounts should be stored in a list. Use a loop to calculate the total sales for the week and display the result.

2. Lottery Number Generator

Design a program that generates a seven-digit lottery number. The program should generate seven random numbers, each in the range of 0 through 9, and assign each number to a list element. (Random numbers were discussed in Chapter 5.) Then write another loop that displays the contents of the list.

3. Rainfall Statistics

Design a program that lets the user enter the total rainfall for each of 12 months into a list. The program should calculate and display the total rainfall for the year, the average monthly rainfall, the months with the highest and lowest amounts.

4. Number Analysis Program

Design a program that asks the user to enter a series of 20 numbers. The program should store the numbers in a list then display the following data:

- The lowest number in the list
- The highest number in the list
- The total of the numbers in the list
- The average of the numbers in the list



VideoNote
The Lottery Number
Generator Problem