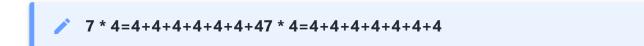
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Recursion Practice

1. Recursive Multiplication

Write a recursive function that accepts two arguments into the parameters \times and y. The function should return the value of \times times y. Remember, multiplication can be performed as repeated addition as follows:



2. isMember Method

Write a recursive boolean method named isMember. The method should search an array for a specified value, and return true if the value is found in the array, or false if the value is not found in the array. Demonstrate the method in a program.

3. String Reverser

Write a recursive method that accepts a string as its argument and prints the string in reverse order. Demonstrate the method in a program.

4. maxElement Method

Write a method named maxElement, which returns the largest value in an array that is passed as an argument. The method should use recursion to find the largest element. Demonstrate the method in a program.

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5. Palindrome Detector

1 A palindrome is any word, phrase, or sentence that reads the same forward and backward. Here are some well-known palindromes:

- Able was I, ere I saw Elba
- A man, a plan, a canal, Panama
- Desserts, I stressed
- Kayak

Write a boolean method that uses recursion to determine whether a String argument is a palindrome. The method should return true if the argument reads the same forward and backward. Demonstrate the method in a program.

6. Character Counter

Write a method that uses recursion to count the number of times a specific character occurs in an array of characters. Demonstrate the method in a program.

7. Recursive Power Method

Write a method that uses recursion to raise a number to a power. The method should accept two arguments: the number to be raised and the exponent. Assume that the exponent is a nonnegative integer. Demonstrate the method in a program.

Shape1 (missing image)

The Recursive Power Problem

8. Sum of Numbers

Write a method that accepts an integer argument and returns the sum of all the integers from 1 up to the number passed as an argument. For example, if 50 is passed as an argument, the method will return the sum of 1, 2, 3, 4, . . . 50.

1

Use recursion to calculate the sum. Demonstrate the method in a program.