

**Tutorial 10**

1. Write a recursive definition of  $x^y$  (x raised to the power y), where x and y are integers and  $y > 0$ .
2. Write a recursive definition of  $i * j$  (integer multiplication), where  $i > 0$ . Define the multiplication process in terms of integer addition. For example,  $4 * 7$  is equal to 7 added to itself 4 times.
3. Write a recursive method that returns the value of  $N!$  (N factorial) using the definition given in Chapter 11 (pp. 585-586). Explain why you would not normally use recursion to solve this problem.
4. An array can be classified as what type of object?
  - a) dynamic
  - b) ordered
  - c) first-in first-out
  - d) heterogeneous
  - e) collection

Answer and explain.

5. Abstract Data Types have which of the following object-oriented features?
  - a) Information hiding
  - b) Inheritance
  - c) Polymorphism
  - d) Message Passing
  - e) All of the above

Answer and explain.