# Lab 7: Chapter 17, “Recursion” SOLUTION

The following exercises are intended to help you apply and practise the concepts introduced in this module. This work is **not** submitted for marks.

1. Write a recursive definition of xy (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. Implement your solution to question 2 above in Java.

## Solutions

1. xy = x for y = 1  
   xy = x \* xy-1 for y > 1
2. i \* j = j for i = 1  
   i \* j = j + (i – 1) \* j for i > 1
3. See the file RecursiveMultiply.java in the Lab 7 Solution directory.