1. Give two valid topological orders for the following graph.

```
A
|   |
| ↘ |
|   |
C

B
```

2. **Chocolate bar puzzle.** Given an $n$-by-$m$ chocolate bar, you need to break it into $nm$ 1-by-1 pieces. You can break a bar only in a straight line, and only one bar can be broken at a time. Design an algorithm that solves the problem with the minimum number of bar breaks. What is this minimum number? Justify your answer by using properties of a binary tree.

3. **Missing integer problem.** An array $A[0..n-2]$ contains $n-1$ integers from 1 to $n$ in increasing order. (They are unique, thus one integer in this range is missing.) Design the most efficient algorithm you can to find the missing integer and indicate the efficiency of your algorithm.

4. **Flipping pancakes.** There are $n$ pancakes all of different sizes that are stacked on top of each other. You are allowed to slip a flipper under one of the pancakes and flip over the whole stack above the flipper. The purpose is to arrange pancakes according to their size with the biggest at the bottom. Design an algorithm for solving this puzzle. Indicate the complexity of your algorithm.