

## Algorithms

### Examples

1. Demonstrate bubble sort to sort the list 3, 4, 2, 1.
2. Demonstrate the quick sort to sort the list 3, 6, 2, 5, 1, 4.
3. Demonstrate the stable matching algorithm when men and women have the preferences  $m_1 : w_1 > w_2, m_2 : w_1 > w_2$  and  $w_1 : m_1 > m_2, w_2 : m_1 > m_2$ .

### Problems

4. True    False    The stable matching algorithm will always produce a matching that is stable.
5. True    False    There is only one stable matching.

## Induction

### Examples

6. Prove that  $1 + 2 + \dots + n = \frac{n(n+1)}{2}$ .