

Crossing the River Problem

A certain number of adults and a certain number of children need to cross a river. A small boat is available that can hold one adult or one or two children (i.e., three possibilities: 1 adult in the boat, 1 child in the boat, or 2 children in the boat). Everyone can row the boat. How many one-way trips does it take for all of them to cross the river if there are:

1. 10 adults and 2 children?
2. 12 adults and 2 children?
3. 10 adults and 5 children?
4. 12 adults and 5 children?
5. A adults and C children? (Does your formula work for all possible values of A and C ?)