Also you ca use the <a href="http://e.wikipedia.org/wiki/Fiboacci\_umber#Matrix\_form">matrix equatio</a> for Fiboacci umbers:



To calculate -th power of the matrix you ca use <a href="http://e.wikipedia.org/wiki/Expoetiatio\_by\_squarig">

expoetiatio by squarig algorithm</a>.

This approach could also be geeralized o the case of arbitrary sequece with liear recurrece relatio.