1. The proposal distribution of adding an edge to a graph is $q(j|i) = \dfrac{1}{\frac{M(M-1)}{2} - E}$ in which M is the number of nodes and E is the number of edges in the graph. and the proposal distribution of deleting an edge is $q(j|i) = \dfrac{1}{E - B}$ in which B is the number of briges in the graph. Both q would remain finite inside the boundry situation. The graph is only allowed to delete an edge if it's a complete graph and to add an edge it all its edges are bridges. If the graph has multiple possible distributions. it has 50% chance to add a random edge and 50% chance to delete a random edge.

2.   initial graph:

given $r=1$, $T=0$

top 1% graph
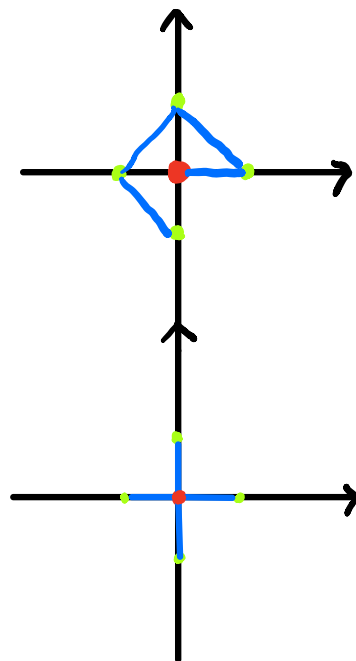
- source node
- non-source node

$E[edges] = 4$
$E[edge\ to\ source] = 4$
$E[maxdis] = 1$