Memory bounded heuristic search

Problem with A* as presented is that it needs to keep track of all fringe and closed nodes. Thus, it tends to run out of space before time.

Some solutions to problem

IDA* (Iterative Deepening A*)

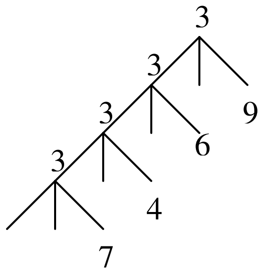
Fix an ε. Modify expand-node so that it only adds nodes to the fringe that are of cost less than the current threshold value.

Do A* search for thresholds < ε, < 2ε, < 3ε, … until you find a solution

Recursive Best-First search

- similar to recursive depth-first-search

Idea: keep expanding nodes along "best" path
keep track of nodes seen so far
when we expand a node, we replace the cost on each node of path with the cost of the current best child.



Since 7 is not the smallest thing we've seen so far, we back track to smallest thing and forget tree that backed up over.

Simplified memory bounded A* (SMA*)

-Do A* until we run out of memory.

When we don't have enough memory to add a new node to the fringe, discard from closed or fringe node of worst cost.