

walk: a sequence of vertices  $v_1, \dots, v_k$   
s.t.  $(v_i, v_{i+1})$  is an edge for all  $1 \leq i \leq k-1$

path: a walk with no repeated vertices.

cycle: a path  $v_1, \dots, v_k$  such that  $(v_k, v_1)$  is an edge

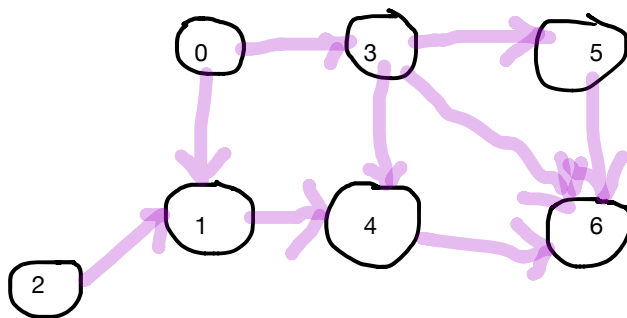
basic search( $G, v$ )

Given graph  $G$  and vertex  $v$ , find the set of vertices  $w$  such that there is a path from  $v$  to  $w$ .

reached =  $\{v\}$

Given a set of vertices "reached" the task be reached from  $v$ , either find another vertex to add or declare this contains all reachable vertices.

For each  $u$  belongs to reached, add all neighbours of  $u$  to reached.



reached =  $\{0, 1, 3, 4, 5, 6\}$   
search Tree

