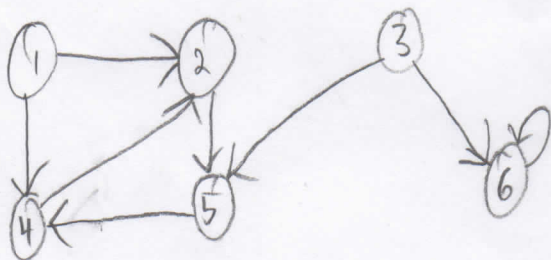


22.2-1

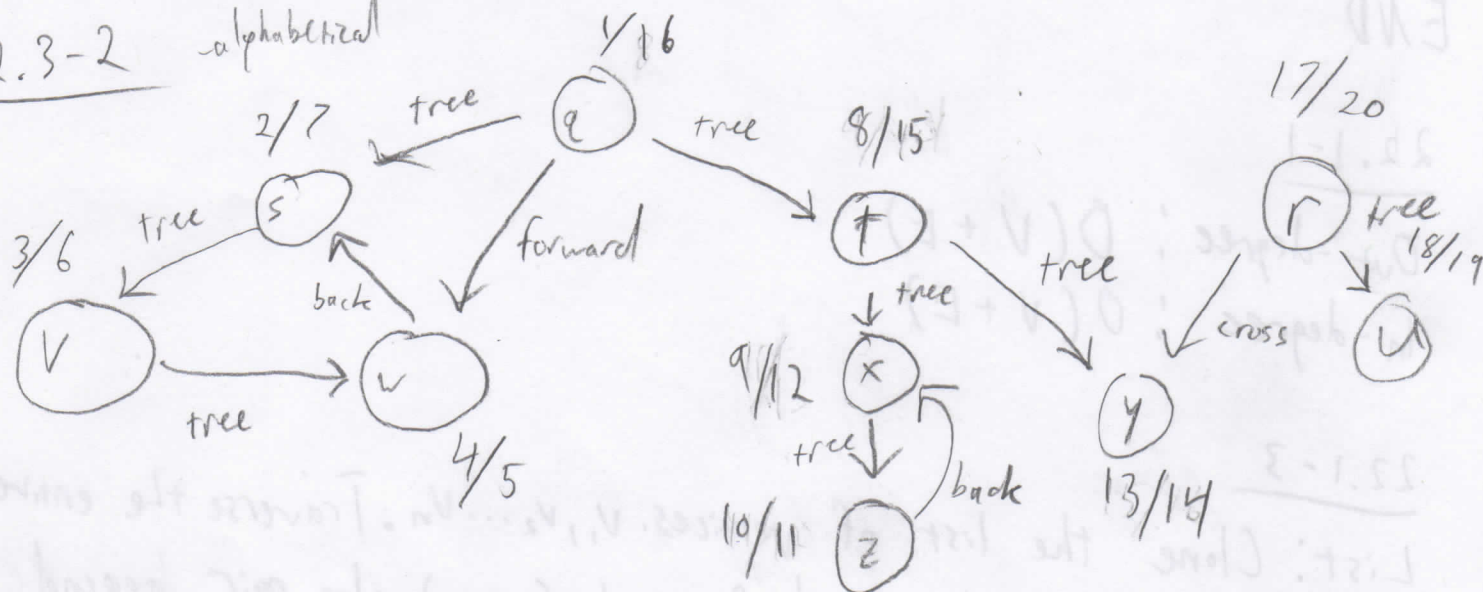


|   | d | $\pi$ |
|---|---|-------|
| 1 | 3 | 4     |
| 2 | 3 | 4     |
| 3 | 0 | NIL   |
| 4 | 2 | 5     |
| 5 | 1 | 3     |
| 6 | 1 | 3     |

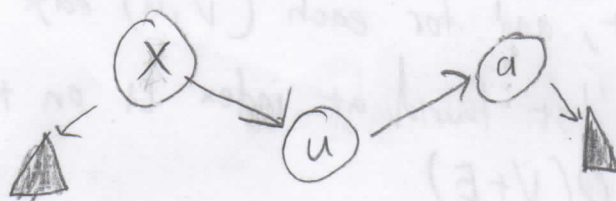
22.2-4

BFS would run  $O(V+E)$  because it would still have to explore the same amount of vertices and edges as it would in adjacency-list BFS.

22.3-2 alphabetical



22.3-11



It depends on the order in which the for loop selects starting points. In the example above, if nodes are chosen in alphabetical order, "a" will be blackened before "u" can search it, so it will be excluded from "u"s tree. Then "u" will create its search tree, blackening only itself. Since "u" will then be black when "x" begins its search, "u" will not be absorbed into the "x" tree either.